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NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

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Sir John Brunner

THE resignation of Sir John Brunner from the directorate of Imperial Chemical Industries, the announcement of which on Wednesday fell as a sharp surprise on an unprepared public, is being treated throughout the British chemical industry with a respectful reticence. It is the only possible attitude, since the reasons are announced to be purely personal, and both Sir John and the company treat the event as a matter of entirely internal interest. On two aspects, however, there is, and need be, no reserve. The occasion, on the contrary, liberates the feelings of all who know the retiring director in his public or private relations, and must inevitably bring expressions of regard for his high character, his fine public work, and the great, though undemonstrative, part he has taken in British chemical industry.

Beyond this there will certainly be, on sentimental if not on other grounds, a general sense of regret that with his withdrawal the Brunner family ceases to appear on the central directorate of this great concern. "Brunner" and "Mond" have been so associated in the public mind that it is difficult to think of one apart from the other. In the chemical industry the long and intimate association has symbolised the ideal alliance of business and science. A union so intimate in its connections, so fruitful in its results, is not ended without deep feeling on both sides.

It is not, in fact, ended, except in so far as the directorate of the great combine is concerned. On that the sole survivors of the original partnership are Sir Alfred Mond, whose exceptional powers mark him out for the leadership, and his son, Mr. Henry Mond, who has assumed charge of the new Labour Department. On the separate board of Brunner, Mond and Co., the three remarkable men responsible for the great ammonia-soda enterprise started in Cheshire in 1873 are all still represented. The first Sir John Brunner is represented by his son and grandson, Sir John and Mr. Felix Brunner. Dr. Ludwig Mond has successors in Sir Alfred Mond (who succeeded the late Mr. Roscoe Brunner as chairman), Mr. Robert Mond, Mr. Emile Mond, and Mr. Henry Mond. A third figure, less known to the public but equally important, Ernest Solvay, the Belgian chemist from whom Dr. Ludwig Mond acquired the ammonia-soda process which the Brunner-Mond partnership was formed to work in 1873, is recalled by the presence of Mr. Armand and Mr. Louis Solvay.

It has been a noble partnership, rarely if ever equalled in its personal relations, its scientific and commercial qualities, and its wonderful achievements. That it should last for ever, untouched by the changes time brings, was too much to hope for; that it should be weakened by the withdrawal of a principal strand, without a sense of personal loss, is equally impossible.

Chemical Engineers and Spray Drying

CONSIDERABLE interest was evinced in the paper read by Mr. J. Arthur Reavell, M.I.Chem.E., on a recent development in spray drying at a meeting of the Chemical Engineering Group last week. It is known that Mr. Reavell has made a study of spray drying for more than ten years. Anything he has to say, therefore, merits careful consideration, as during the period in question he has been responsible for many trials on an experimental and semi-technical scale, and his cumulative knowledge and experience are probably unique.

The form in which certain chemical products and foodstuffs are ultimately sold is that of a dry powder, somewhat resembling flour. When any process other than spray drying is used it is invariably found that the cost of drying and grinding constitutes an appreciable percentage of the total cost of the product. With the spray drying process, the product is yielded in the form in which it is ultimately required without the need of any additional treatment. It is this feature

that renders spray drying peculiarly attractive, in that the three unit processes—evaporation, drying, and grinding—are effected simultaneously. With few exceptions the spray drying process is applicable to the dehydration of any material that can be obtained in the form of a solution or a finely divided suspension, from which it is possible to obtain a solid residue by means of evaporation.

The success of any spray drying process is dependent on the fulfilment of three essential conditions—(a) the efficiency of dispersion as regards uniformity and fineness of the particles and the extent of their travel; (b) the necessity for ensuring rapid and uniform contact of the dispersed particles with the drying medium; and (c) the importance of removing as completely as possible the dried product from the drying medium. It is impossible to reproduce all Mr. Reavell's detailed observations concerning these conditions. That he handled the matter in a fascinating manner, and, equally, that there was much calling for careful study in what he said, was generally agreed by the speakers who took part in the discussion.

The ultimate form of the disperser for ensuring satisfactory atomisation of the solutions to be treated has only been evolved after the most careful observation, and after repeated trials with jet and disc atomisers, modified in many minor details. A satisfactory disperser must be accessible, easy to clean, and of simple construction, and withal must allow the liquor to be sprayed from the under-side, through a large number of distributing openings, so that it leaves the edge as a film of regular thickness. To evolve such an apparatus is obviously a question of trial and error, and involves many experiments under a variety of conditions. The temperature of the drying medium depends largely on the character of the products to be treated. Some of the latter are stable, others unstable. Some decompose at or below 100 ° C., others can be subjected to a much higher temperature than 100° C. with impunity.

Mr. Reavell has used steam, high temperature oil circulation, flue gases, direct firing, and electricity as the main sources of heat supply. He discussed at length the advantages and disadvantages of these, and provided a wealth of data that cannot but be useful to all concerned. In the discussion it was remarked that the application of flue gases is limited, by reason of their moisture content, and the presence of sulphur dioxide and grit. To remove the latter involves not a little expense, and it often pays to use some other source of heat supply. The method by which reasonable time contact between the sprayed liquid and the drying medium is secured is a matter of vital importance to the success and efficiency of the process. After many trials it has been found that not only has the heat or other medium to enter the apparatus tangentially, thereby ensuring a spiral travel, but that a supply of air is necessary at a point adjacent to the dispersed particles, in order to avoid a too rapid and a too local drying effect. Bag filters are used as the most effective means of removing any entrained particles from the drying medium. The question of entrainment, and how this could conceivably be reduced, was raised in the discussion. The higher the temperature of the drying medium (subject to no ill effects accruing to the product) and the larger the outlets from the apparatus, the less should be the entrainment, by reason of the reduced velocity.

The economics of spray drying is a matter that needs to be carefully considered. Mr. Reavell dealt with the subject in a broad and impartial way. It only remains, as was suggested by Professor Williams, to draw up a statement showing the number of British thermal units effectively utilised in the process, the horse power absorbed in driving the fan and in operating the disperser, taking into consideration the labour involved and giving credit for the absence of drying and grinding, to afford an idea of the value of the spray drying process. That it has many applications cannot be doubted, and that this method will receive increasing attention as the result of Mr. Reavell's paper is equally certain.

U.S.A. and European Trusts

AMERICAN chemical opinion appears to be a little disturbed by the great fusions of chemical interests first in Germany and now in Great Britain, and by the further prospect of a common understanding between them. We have seen suggestions from the chemical side in favour of some modification of the Sherman Anti-Trust Law, and labour opinion in America is moving distinctly in the same direction. "It may be argued," states *Industrial and Engineering Chemistry*, the official organ of the American Chemical Society, "that such mergers stifle individual initiative, and increase overhead costs, and that an allocation of sales territory restricts markets and tends to promote dumping in other sections or a decrease in volume of output. On the other hand, when a single organisation is capable of producing more than 35 per cent. of the world's needs, it is evident that through such production may come dictation in world markets, and, if the power is so used, a continued threat in domestic markets as well. Like any great power, whether the results are for ill or for good depends upon how it is used, and it is too early to predict what the effect will be upon American manufactures. Editorial comments in British papers might be interpreted by a pessimist as a plain invitation either to agree to terms or take the consequences. One less gloomy might merely regard them as boastful statements made in all good feeling, and indicating a certain relief that now, through a series of combinations and consolidations, the chemical industry of Europe is prepared once more to gather to itself the markets of the world. Further details of ratified pacts must be awaited before predictions can be ventured." The President of the Chemical Foundation goes far beyond this critical estimate in his statement that the European combine—which, by the way, is not yet in existence—is a "threat and menace against the safety and independence of our national defence, national health, and national progress." To which the New York *Times* makes the mild rejoinder that the country noted for mass manufacture and standardisation has no ground for complaining of similar efforts abroad.

Meanwhile, the A.C.S. journal draws attention to an interesting development in the nature of a German invasion. The I.G. has become incorporated in the

State of Louisiana, and is said to have acquired property in the midst of its natural gas fields. No objection is offered to this; on the contrary, if scientists and technologists wish to engage in legitimate manufacture in the United States, their efforts will be welcomed. The United States does not require production at home to protect a patent—as several countries, including Great Britain, do—but obviously it would dislike the practice of taking out patents in America to prevent home production there, manufacturing elsewhere, and exporting the products to American markets. The establishment by a foreign concern of a *bona fide* manufacturing business in America is, however, a quite different matter, and is regarded among American chemical industrialists as a possible way to better international understanding.

A Register of Chemists

THE letter published to-day from the general secretary of the British Association of Chemists raises again the familiar question of a register of chemists, about the advantages of which in principle everyone is agreed, but about the details of which nearly everyone has some theory of his own. It seems a reasonable primary condition that the formation of a General Chemical Council should require the co-operation of all societies with a membership confined to chemists; and a reasonable secondary consideration is that the qualifications for admission to the register at the outset should represent a minimum standard to be advanced gradually until an approved university degree or diploma becomes the recognised qualification. The "B" qualification of the British Association of Chemists is suggested as a suitable basis for discussion. The Committee, however, does not suggest that membership of the Institute of Chemistry or of the British Association of Chemists should be essential for admission to the first register, though it recommends that membership of one or of both is desirable. All these seem reasonable as starting points. The difficulty will be to get the societies concerned or their executives to take the matter up in a serious spirit. Are they really keen on establishing a register? Are they prepared, without any question of precedence, to join in a co-operative attempt to establish one? If they are, there should be some response to Mr. Rhodes's first move. If they are not, the existing inertia will not be seriously disturbed.

Textile Colour Problems

THE West Riding Section of the Society of Dyers and Colourists has again arranged an excellent series of contributions for the new session which was opened last week with a smoking concert at the Midland Hotel, Bradford. This was followed on Thursday, October 20, by the opening address, entitled "Concerning Chemical Conundrums," given by Dr. E. F. Armstrong, chairman of the executive committee of the British Dyestuffs Corporation, Ltd. Several other interesting papers have been arranged, among which may be mentioned an address by Professor E. C. C. Baly, F.R.S., of the University of Liverpool, entitled "The Synthesis of Sugars from Carbonic Acid by Means of Light," to be given on November 3. This address will follow a most interesting paper on "The Effect of Moonlight on Plants," given some time ago by the same lecturer, who is an authority on the subject. A paper is to be given on December 15 on "Leather Dyeing," by Mr. H. Salt, M.Sc., of the Leeds University, who has specialised on this question, and Mr. H. R. Hirst, of the British Research Association, is also down to give an address on January 5 on "Some causes of uneven dyeing." Arrangements for other papers are in progress, in addition to a luncheon address which it is hoped will be given during the early part of December. The addresses are given in the ballroom of the Midland Hotel, Bradford.

Books Received

COAL IN GREAT BRITAIN. By Walcot Gibson. London: Edward Arnold and Co. Pp. 334. 21s.

INTRODUCTION TO PHYSICAL CHEMISTRY. By Sir James Walker. London: Macmillan and Co., Ltd. Pp. 446. 16s.

HYDROCHLORIC ACID AND SODIUM SULFATE. By N. A. Laury. New York: Chemical Catalog Co. Inc. Pp. 127. $4.00.

REPORT ON THE ECONOMIC CONDITIONS IN THE UNITED STATES OF AMERICA. May-June, 1927. By Sir Joyce Broderick and Capt. A. J. Pack. London: H.M. Stationery Office. Pp. 106. 3s.

The Calendar

Oct. 16–27	Société de Chimie Industrielle: Seventh Congress of Industrial Chemistry.	Paris.
23–26	Marcelin Berthelot Centenary Celebrations.	Paris.
26	Society of Chemical Industry (Newcastle Section): "Free Acid in Commercial Ammonium Sulphate." B. Richardson. 7.30 p.m.	Armstrong College, Newcastle-on-Tyne.
27	Institution of the Rubber Industry (Manchester Section): "Transmission and Conveyor Belting." W. A. M. Keith.	Geographical Hall, The Textile Institute, Manchester.
27	Institute of Chemistry and Society of Chemical Industry (Edinburgh Sections): Inaugural Address—"Chemistry the Slave of the Lamp." J. Adam Watson. 7.30 p.m.	North British Station Hotel, Edinburgh.
28	Physical Society. 5 p.m.	Imperial College of Science, South Kensington, London.
28	Society of Chemical Industry (Liverpool Section): "Merseyside and Chemical Industries." Dr. A. Holt. 6 p.m.	Muspratt Lecture Theatre, University, Liverpool.
28	The Manchester Literary and Philosophical Society: 7 p.m.	Manchester.
28	Institution of Chemical Engineers: "Crystallisation." Sir Wm. Bragg.	Institution of Civil Engineers, London.
28	West Cumberland Society of Chemists and Engineers: "Use of Explosives in Mining and Quarrying." J. E. Lambert. 7 p.m.	Technical College, Workington.
28	University of London, University College: Public Lecture on "Hydrogen Ion Concentration." Dr. Phyllis M. Kerridge. 5 p.m.	London.
31	University of Birmingham. Chemical Society: "Poisons." R. S. Tipson.	University, Birmingham.
Nov. 1	Institute of Metals, North-East Coast Section: G. Burns, "The Mechanical Properties of Metals at High Temperatures." 7.30 p.m.	Armstrong College, Newcastle.
2	Society of Public Analysts. 8 p.m.	St. Mary's Hospital, London, W.2.
2	Empire Industries Association: Sir Alfred Mond.	Cannon Street Hotel, London.
2	Institution of Chemical Engineers: Annual President's Reception.	London.
3	Society of Dyers and Colourists (West Riding Section): "The Synthesis of Sugars from Carbonic Acid by Means of Light." Professor E. C. C. Baly.	Midland Hotel, Bradford.

A Recent Development of Spray Drying

Mr. Reavell's Communication to the Chemical Engineering Group

At a meeting of the Chemical Engineering Group, on Friday, October 14, Mr. J. A. Reavell read a paper on "A Recent Development of Spray Drying," a short account of which is given below.

In all chemical works, said Mr. Reavell, and to a large extent, in the manufacture of food products, the removal of water from various solutions and substances formed an intermediate step in most manufacturing processes. Very often this could be done by evaporation in evaporators of various kinds, but in many cases the use of any type of tubular evaporator, or of drum dryers, was not feasible. In the form of evaporation described in his paper air was used as the medium whereby the heat was conveyed to the liquid to be evaporated.

The production of chemical products, or food products in their ultimate dried form, usually as a powder, generally involved the three processes of evaporation, drying, and grinding. In the spray dryer described these three processes were performed in one operation. With very few exceptions, the plant was suitable for the dehydration of any material which could be obtained in the form of a solution, or a finely divided suspension, from which it was possible to obtain a solid residue by means of evaporation.

In order that spray drying plant should operate successfully three essentials must be fulfilled :—the atomisation of the liquid to be treated, the drying of the dispersed particles, and the removal of the dried product from the air stream.

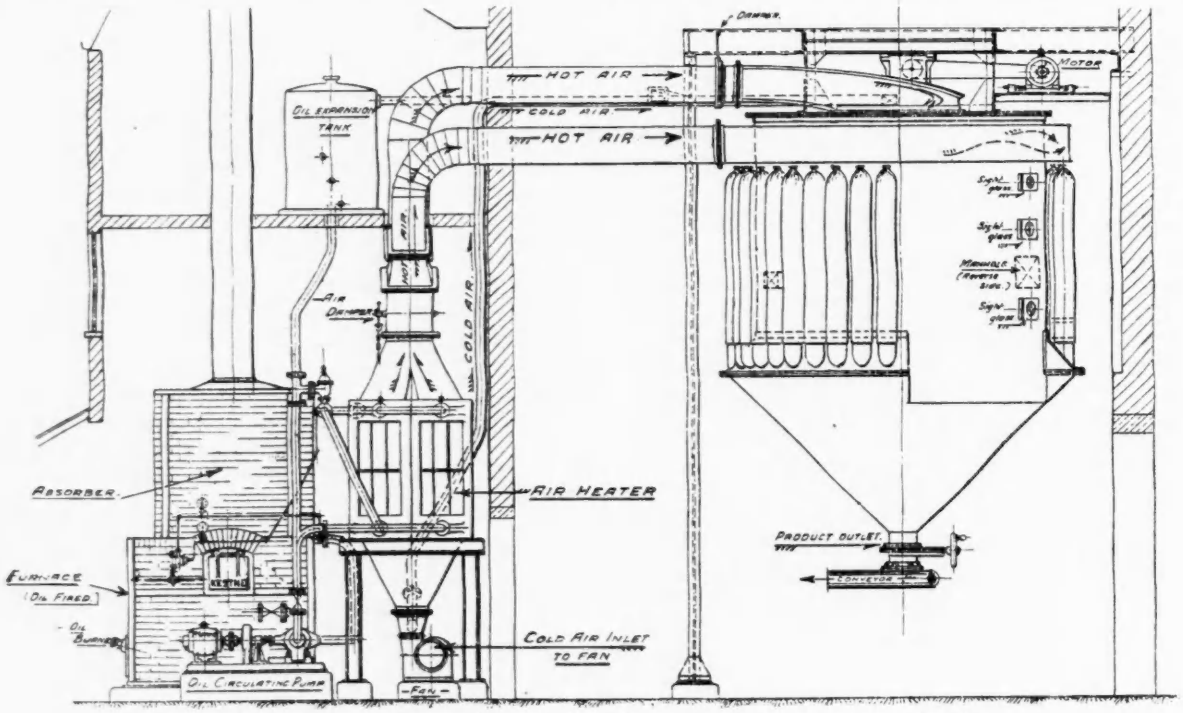
Atomisers

Mr. Reavell went carefully into the question of jet and disc atomisers. He stated finally that a recent design of disc had been evolved to overcome the various troubles associated with other types. The essential characteristic of this disc was that the liquor was sprayed from the underside, although the driving mechanism and the feed pipes were situated above the disc. It consists of a central ring in the outer periphery of which were a number of openings. These openings led to the underside of a bell-shaped spraying disc. Above the bell-shaped portion and the central disc with its distributing openings a cup was formed into which the liquor was fed. The centrifugal force which was developed in this cup drove the liquid through the distributing openings, and it finally left the lower edges of the disc itself. The disc was, from the point of view of accessibility, ease of cleaning, etc., of extremely simple construction, and in normal working, even with foodstuffs, it was cleaned by simply passing water through the spray.

The Drying Chamber

As regards the type of drying chamber used for the under-driven disc atomiser, the atomiser was situated toward the base of a cylindrical chamber. The drying air passed upwards, and might be given a rotary motion with advantage. The great difficulty was that it was impossible, except in very exceptional cases, to provide an upward air current of sufficient velocity to carry the whole of the dried material forward, and if that was not done dried material fell downwards through the moist zone. After falling through the moist zone this powder passed through the incoming hot air, where it would be overheated. The whole problem of the separation of the powder from the air was greatly complicated if it were attempted to carry the powder forward by means of the drying air current. On the other hand, difficulties arose if the particles were allowed to separate in the drying chamber.

With the atomiser driven from above and placed in the top of a circular chamber they were enabled to dry with a downward current of air. There was a limiting diameter for the drying chamber depending upon the distance that the atomised liquid would travel from the disc periphery before its direction was materially affected by the air currents. It was advantageous to employ a downward current of air, and the first attempts to design a drying chamber to work with a downward current were of a simple character. The air entered the drying chamber above the atomiser and travelled downwards at a uniform velocity, or, in some cases, it was supplied more intensely at either the centre or at the outer diameter. There were certain difficulties, but these difficulties had now been completely overcome, methods having been found whereby



KESTNER PATENT SPRAY DRYING PLANT. AIR HEATED BY MERRILL PATENT OIL SYSTEM.

a more efficient mixing of the dispersed liquid and the heated air could be obtained, and whereby the drying time, and consequently the size of the drying chamber of a given duty, could be reduced. The air distributor had been developed and improved. With the latest type the hot air was admitted at a central distributor and at a secondary air distributor, the latter being situated at the outer circumference of the top of the drying chamber.

The Removal of Dried Powder

A rotary motion of the air was of great value in promoting rapid drying, and it had a further use in separating the powdered product towards the sides of the drying chamber. It was not a difficult matter now to obtain a very efficient separation of powder from the air stream, and in cases where that powder was eventually collected in a lower conical portion of the drying chamber the method adopted was as follows:—An apron piece, in the form of a truncated cone, was fitted above the lower cone, and on this apron piece most of the powder collected. It fell from the apron piece to the lower cone of the drying chamber, the air passing upwards between the apron and the upper surface of the lower cone. The surface area for the air in that space was great, and therefore the upward air velocity was low and the quantity of powder carried forward was small. This powder was collected in a number of bag filters, and these could be discharged into the lower cone of the dryer direct, thus forming a most convenient and simple arrangement.

Mr. Reavell described two plants in which the principles discussed had been embodied. The spray dryer was being very successfully employed in connection with a patented process for the manufacture of a metallic oxide. The raw material in this case was a solution of the metallic salt, which, after drying, was calcined to give the oxide. The waste gases from the calcining plant were used as the heating medium. The calciners were coke-fired, and the flue gases, after serving for the calcination of the salt, were taken, together with a quantity of excess air, to the air distributors of the spray-drying plant. The temperature of the gases at the inlet to the air distributor was between 250° C. and 300° C., and by evaporation of the solution which was fed to the dryer the gases were reduced to a temperature of about 90° C. before they were discharged to the atmosphere. The solution contained a small quantity of free acid, but the only parts of the plant which came in contact with it were the feed pipes to the atomiser and the atomiser disc itself. There was no difficulty in protecting these, and silver plating was the method that had been adopted with complete success. The plant was producing about 3 cwt. per hour of dry powder, this being removed from the drying chamber and transferred continuously to the calcining plant.

In another type of plant (shown in the figure), it was necessary to use a supply of clean air, and in this case, the material being stable, fairly high temperatures could be safely employed. For this plant an oil-heated air heater raised the air to a temperature of about 240° C., the air leaving the plant at about 100° C. Owing to the low vapour pressure of the moisture in the partially-dried material, it was found advisable to maintain the exit air temperature rather higher than would be necessary for most other products.

The Economics of Spray Drying

In dealing with the economics of the process, the main factor to consider was the provision of the necessary heat for evaporation. At first sight it would appear that the limiting condition for the use of air as a drying medium was the saturation of the air by moisture at the air exit temperature of the plant. If, however, the moisture saturation curves for air were considered, it would be seen that the saturation value rose rapidly when temperatures above 50° to 60° C. were employed. When also the low specific heat of the air was taken into account, it would be realised that quite a small amount of evaporation would cause the air temperature to drop considerably.

From graphical considerations the following conclusions could be drawn :—

(1) If the air entering the air heater was at ordinary room temperature its moisture content was not important, and had very little influence on the use of that air for drying, as the saturation value of the air increased so rapidly with increasing temperature that the initial moisture content would only give a few per cent. saturation at high temperatures.

(2) When air was cooled by the evaporation of moisture, the temperature drop was so great for a relatively small amount of evaporation that it was possible to cool the air by that means to a temperature closely approaching that of the air admitted to the heater before a saturated condition was obtained.

(3) The rate of evaporation being directly proportional to the temperature difference between the air and the particle from which moisture was being evaporated, that rate would become low as the air temperature fell, and it was that factor which had the greater bearing on the limiting minimum temperature of the air rejected from the spray-drying plants.

Registration of Chemists

To the Editor of THE CHEMICAL AGE.

SIR,—In the first number of the *Chemical Practitioner*, the new official organ of this Association to be issued this month, the report of the Registration Committee will be published, so that some preliminary account of it may be of interest to your readers.

In the first place the Committee insists that to form a General Chemical Council the co-operation of all societies with a membership confined to chemists is necessary. The Committee is rightly of opinion that no society alone can deal with so complex a question, and that each would probably have valuable contributions to make before a scheme completely acceptable can be formulated.

The question of the minimum qualification for admission to the register is discussed, the Committee being of opinion that the "B" qualification of the British Association of Chemists will suffice as a satisfactory basis for the compilation of the register. The Committee further agree that six years after the inception of the register an approved university degree or diploma shall be the only recognised qualification for registration. On August 6 an official statement regarding the "B" qualification appeared in THE CHEMICAL AGE, so that the requirements in respect of it have been widely circulated. It was there stated that the problem of qualification had been solved by this means, and the foundations of the register already existed, and although doubtless it is capable of improvement in detail it should relieve the Registration Council of a great deal of preliminary work in this direction.

The Committee does not suggest that membership of the Institute of Chemistry or of the British Association of Chemists should be a *sine qua non* of admission to the register at first, but it recommends that membership of one or preferably of both these bodies is, as a matter of convenience, desirable. It would be open to any chemist supposing himself to possess "such qualifications as would be accepted by the Institute of Chemistry or the British Association of Chemists," to apply for admission to the General Register of Chemical Practitioners.

At this preliminary stage it will suffice to emphasise two points. In the first place a report is generally open to the charge of being a "disappointing document." However that may be, the Council will be satisfied if in criticising it thus, societies or individuals are moved constructively to criticise it.

The work of the Committee is by no means final nor complete, nor does it represent more than in outline the detailed recommendations the Committee will be in a position to make. Secondly, emphasis may well be placed again upon the Committee's and Council's conviction that registration cannot and ought not to be the work of one society alone, and that discussion as to who shall have precedence in accomplishing that for the sake of which all should unite will do nothing to help forward the work.—I am, etc.,

HENRY T. F. RHODES,
General Secretary.

British Association of Chemists,
Empire House,
175, Piccadilly, W.1.

Professor Armstrong's Berthelot Lecture

PROFESSOR H. E. ARMSTRONG, F.R.S., will deliver a lecture on "Marcelin Berthelot and Synthetic Chemistry" at the Royal Society of Arts, on Wednesday, November 30, at 8 p.m. His Excellency the French Ambassador will preside.

The Desiccation Method of Beet Sugar Manufacture

An Account of the De Vecchis Process

On Wednesday, the Chemical Engineering Group of the Society of Chemical Industry, at a joint meeting with the Glasgow Section, heard an account of "The Desiccation (De Vecchis) Process of Beet Sugar Manufacture and the Drying Plant Used." The process was discussed by Dr. C. S. Garrett, and the drying plant by Mr. G. W. Riley, M.I.Chem.E., of George. Scott and Son (London), Ltd., the latter firm having designed and constructed it. It appears that the De Vecchis process offers opportunities of great economies in the extraction of sugar from beet.

DR. C. S. GARRETT said that the process invented and patented by Dr. Ineo De Vecchis, of Rome, for the manufacture of sugar from sugar beet differed from the process now in general use in that the sugar beet after being washed and sliced into cossettes was subjected to a drying process. Fresh beet would not keep, and had to be extracted when harvested, resulting in an intensive campaign occupying here about three months of the year, or less in warmer climates. De Vecchis found that, by subjecting the slices of sugar beet for a certain time to a temperature between 90° C. and 100° C., it was possible to obtain, simultaneously with the almost complete elimination of the water content, the complete coagulation of the albumenoid substances, which would otherwise pass into the warm water with which the beet was subsequently treated. He found also that the physical modifications of the albumenoid substances became more pronounced as the percentage of water in the slices was reduced until finally, at about 3 per cent. in weight, the cossettes had a characteristic appearance, were crisp and brittle, and could be crushed by the pressure of the hand. "Cornification" was the name which he had given to the cossettes at this stage.

The cossettes dried by this process were capable of being stored for a considerable time without deterioration from bacteria, mould, etc., and had their sugar content quite unchanged. In addition, physical or physico-chemical changes were produced in the cell and cell contents, other than the sugar, which greatly facilitate the subsequent extraction of the latter. De Vecchis had to develop a practical system of desiccation conforming to the conditions of his discovery. After long investigation and trials undertaken at considerable expense, there was finally evolved, in collaboration with George Scott and Son (London), Ltd., a dryer which fulfilled all the required conditions and had stood the test of practical working.

Dried Cossettes

Dried cossettes containing about 3 per cent. of moisture were stable, and could be preserved unaltered practically indefinitely. Dried cossettes were from 20 to 25 per cent. of the weight of the raw beet, and occupied from 120 to 140 cu. ft. per ton, or about half the volume of the wet cossettes. They could be briquetted by the application of hydraulic pressure of from 250 to 300 atmospheres. The compressed cake occupied about 37 cu. ft. per ton. So long as the conditions of drying laid down by De Vecchis were adhered to, analysis had shown that there is no loss of sugar, either through caramelisation or degradation to invert sugar.

Extraction

The dried cossettes were extracted in the same manner as in the diffusion process. De Vecchis uses a battery of from 10 to 12 lixiviators (diffusers) of simple construction. Both open and closed types, wi h and without reheating devices, have been employed, but the closed reheating type is probably the most satisfactory method. Dealing with Italian beet having under the best conditions about 12 to 13 per cent. sugar content and a purity about 80 to 82 per cent., the extracted juice showed a strength of 45–50° Brix. when obtained by open type lixiviation. With the closed type it is estimated that a strength of approximately 60° Brix. will ultimately be obtained in normal practice. This strength obtained by a single process of extraction is a very great contrast to the dilute juice of about 15–17° Brix. obtained by diffusion of freshly cut cossettes.

Other Practical Points

The exhausted pulp retained its cossette form and was similar in appearance to the ordinary diffusion exhausted cossettes, and, like the latter, could be either used locally in the wet state, or pressed, dried and marketed. There was a difference between this pulp and that obtained from the ordinary process, for the albumenoid matter of the beet remained in the exhausted pulp, imparting to it a higher feeding value from its greater nitrogen content. The "petit-eaux" or drain waters from the diffusers did not contain albumenoid matter, and if efficiently separated from traces of exhausted pulp, could be passed to the drain without fear of subsequent decomposition or putrefaction taking place. In view of the recent outcry in England against the pollution of streams by drainage from beet sugar factories, this was very important. In Italy the Ministry of Health exempted all De Vecchis factories from any treatment of their waste waters. The defecation of the lixiviation juice was a simple process indeed compared with the multiple carbonatation and sulphitation processes required to purify ordinary diffusion juice.

In the purified juice, after passing the safety filters, was dissolved all the second-product sugar, which brought its strength to 60° Brix. or over. It was now pumped directly to the vacuum pans and concentrated to crystallising point. The massecuite was discharged to the crystallisers and then centrifuged, giving the first-product raw sugar. The refining of the raw product and the further treatment of its mother-liquor syrup were carried out in the normal way. Any successful and economic method of refining raw beet (diffusion) sugar or raw cane sugar was equally applicable to raw De Vecchis process sugar.

Advantages of the Process

By drying the cossettes and rendering them stable and storable, the extraction could be carried out at any time or continuously throughout the year. With continuous working for the same production of sugar, therefore, a De Vecchis plant need only be of one-third the capacity of a similar plant using the ordinary system. As, however, the beets were dried only during the beet harvest, the De Vecchis process required the same size of washing and slicing plant as the ordinary process, and, in addition, the drying plant and storage accommodation for two-thirds of the beet supply in the shape of dried cossettes. The points in favour of the continuous production of sugar were regulation of supplies according to the demands of the sugar market, and continuous employment at the factory for the operators. As the expense of producing and storing dried cossettes was less than the expense incurred in producing the raw sugar, less money was locked up when the demand for sugar was reduced.

Dr. Garrett's analysis of the costs of manufacture in this country seemed to show that they were about £1 to £2 per ton above foreign costs of beet sugar production, and the natural question was, could this be reduced? Reduction in manufacturing costs could only be effected by improving the efficiency of the operatives or of the plant. Improvements in the present diffusion process were unlikely, since the diffusion process had developed a high standard of efficiency from long experience and keen competition. The De Vecchis process provided an alternative way out of the impasse, and might well close the gap, as it appeared possible for the process to contribute about 8s. per ton from both lower manufacturing cost and the increased dividends which it opened up

The Drying Plant

Mr. G. W. Riley described the plant designed by George Scott and Son (London), Ltd., for the pre-drying of the beet cossettes. The design of the plant was based on the standard band dryer produced by this firm. In 1926 a single unit dryer of capacity 70 tons per 24 hours was produced and shipped to Italy, and the Sugar Co. of Sanguinnetto were so satisfied with it that they decided to install a second 100-ton unit this year, and the latter is in satisfactory operation.

In this latter plant the drying chambers measured approximately 49 ft. long by 9 ft. wide. The walls were of concrete slabs filling in the space between the steel members of the framing. Hinged double-walled steel doors at each end of the

machine gave access to the interiors and a series of doors midway along one side gave access to the chambers, bands and chain. Four endless drying bands were provided in the top chamber and two in the lower or coagulating chamber. Each consisted of a number of stout wire panels hinged together and attached to the endless band chains provided for moving the bands. The air was kept in constant circulation through the top drying chamber by the six large propeller fans directing the air horizontally over the full length of the chamber and through openings approximately half-way up the inner wall.

Hot furnace gases from the main flue (oil fuel was used) were gradually mixed into the air in circulation, the supply of furnace gases being regulated by the six pairs of butterfly dampers. Part of the air was exhausted constantly through a pre-determined section of the top drying band. The principle on which the moisture was removed from the wet material was by the action of the hot air and gases. Wet and dry bulb hygrometers, instruments for recording at a central control board the temperature of various vital parts, etc., are, of course, provided. As stated above, the 100-ton machine is working satisfactorily, the fuel consumption being low, and there being no trouble from unconsumed oil being carried forward from the burners to the cossettes; and it shows superiority over Italian and German plant designed for the same purpose.

Colour Standardisation, Testing, and Measurement

Views of Scientific and Industrial Experts

In the course of the discussion in London last week on these problems, some indication was given of the difficulty of accurate standardisation and measurement of colour, and of the directions in which research is most needed. It was suggested that further conferences might be convened.

On Wednesday, October 12, at the Royal Society of Arts, London, a general discussion took place on colour standardisation and testing in the paint and colour industry. Mr. C. A. Klein (president of the Oil and Colour Chemists Association) was in the chair.

The Progress of Standardisation

The President said that for the past three years panels of the British Engineering Standards Association had been engaged in the preparation of specifications for pigments, paints and varnishes, and at an early stage of the work it became apparent that there was an urgent need for a standard system of colour nomenclature. A sub-panel under the chairmanship of Dr. H. H. Morgan had produced a British standard schedule of colours for ready mixed paints, and this schedule of colours, which was at present in draft form, was a modest effort to standardise some 20 British standard colours by the provision of standard tint cards. It was to be hoped that this work was the forerunner of a more comprehensive scheme of standardisation. Of equal importance was the problem of accelerated standard methods of testing the fastness to light.

Colour Makers' Point of View

Dr. C. Beavis, representing the colour makers of the country, spoke of the difficulties manufacturers experienced in the manufacture and sale of pigments for want of some means of expressing colour values in definite mathematical terms. This failure to express colour in terms of definite measurement often led to dissensions between buyer and seller. This want of exactitude was also felt in other ways. A firm established a reputation in, say, a certain shade of red pigment. It required to be in a position to reproduce precisely that same shade of red from year to year, but the general means of doing so were quite unsatisfactory. Again, a standard was agreed upon between buyer and seller, but successive makes to that standard varied, until over a course of years such a wide departure from the agreed standard had been unconsciously reached that the extent of it was not capable of exact measurement by means in general use. The tests in general use not only differed in their manner of execution but were all wanting in precision. The colour of pigments was a definite physical property capable of exact measurement, yet to-day the practice still obtained of sending a sample as an indication of the shade required. It was to be hoped that one of the several methods of exact colour measurement available would be adopted in the industry, and then it would become possible at any time and in any place exactly to reproduce any given colour without recourse to a sample.

Dyestuffs

Mr. R. S. Horsfall (British Dyestuffs Corporation) said that the dyestuffs manufacturer was not in contact with the user of paint or the buyer of paint or lithographic inks as the case might be. His market was entirely with the lake maker, the paint maker, or the lithographic ink maker. Two classes of dyestuffs were produced for the purpose of lake making and lithographic ink making: water soluble dyestuffs and an insoluble or almost insoluble dyestuffs. The possibilities of experimental error in testing water soluble dyestuffs were great, but they were much less with the insoluble or almost insoluble dyestuffs. There was a series of difficulties common to both soluble dyestuffs and the insoluble or almost insoluble dyestuffs in the matter of testing, and such difficulties could not be ascribed to experimental error. Rather were they to be ascribed to the weakness of the lake maker's method of estimating the value of the dyestuffs which he used. There was no exactness in comparisons of material made up in accordance with samples, and experience had shown that six different people working on samples of the same batch would get six different results. The whole matter was very complex and very difficult. Viewing it from the point of view of a chemical manufacturer, he would like to see methods of testing introduced which were more in line with the usual methods of testing organic chemicals.

Scientific Colour Measurement

Dr. L. C. Martin said there were some respects in which colour measurement need no longer be regarded as a problem. The original work of Newton carried forward by Young, Maxwell, Helmholtz, and Abney, and still further developed in later years by Ives and Guild, had resulted in the theoretical development of the trichromatic theory of colour measurement being practically complete. This theory of colour measurement would certainly follow at once from a straightforward trichromatic mechanism of colour vision, but it was not so easy to establish the existence of the mechanism from our present state of knowledge of the working out and success of the theory. The great necessity at present was experience and yet more experience.

Mrs. F. E. Lovibond said the present position with regard to colours was that every trade, scientific society, and school of artists had their own list of colour names. Even in the same trade the various members were not always in common agreement as to what a specific colour really was. It was obvious, therefore, that some means must be found to express colour quantitatively and qualitatively. Mrs. Lovibond referred to the suitability of the Lovibond tintometer for the purpose.

National Physical Laboratory Tests

Mr. J. Guild (National Physical Laboratory) described the methods of expressing numerically the results of measurements on the colours of materials which had been adopted at the National Physical Laboratory. Whatever system of colour measurement was used there were always three independent adjustments to be made in obtaining a colour match. This was inherent in the nature of the phenomenon of colour vision, and there was no escape from it. Mr. Guild mentioned a colorimetric equipment whereby measurements could be made on the N.P.L. standard system. This apparatus, made by Adam Hilger, Ltd., was complicated to construct but very simple to use.

Need of International Standards

Dr. S. G. Barker, of the Woollen Research Association, said the question of standardisation resolved itself under three headings: (1) Fastness and durability of a colour to the influences of external conditions; (2) Choice of standard tests

to apply to a colour in order to determine its suitability or otherwise; (3) Determination of the exact shade of a colour and its correct representation or description. After a close examination of various sources of artificial light, he had come to the conclusion that the violet carbon arc, with a filter of thin Vitaglass between the pattern and the arc, was the best sort of artificial illumination which could be used. It was impossible to work even with sunlight and expect any degree of uniformity.

It was essential to prescribe a standard humidity on the surface of the pattern at which the tests should be carried out. He was not sure how temperature would affect the paint and varnish industry, but it would undoubtedly have an effect upon the oils. As an instance of the necessity of international standards he mentioned that whereas the Germans had taken a certain number of degrees of fastness and called No. 1 the fastest, the Americans had taken a similar number of degrees and called No. 1 the most fugitive. Thus the whole question was of the highest international importance, and the co-ordination of effort now being attempted by the Society of Dyers and Colourists in England was most praiseworthy.

Dr. Jordan (director of Research to the British Paint and Varnish Research Association) said the reason for arranging this discussion was that it was felt that the advance in general scientific knowledge in colorimetry had reached a stage which justified the bringing together of the scientific specialists and the industrial specialists, and it was hoped that the meeting would give an opportunity to colour technologists and the chemists employed in the industry—speaking of the pigmentary colour industry—to speak their minds on this important subject.

The President, in proposing a hearty vote of thanks to those who had taken part, expressed the hope that it would be possible for them to come together again in the near future and try a little further to crystallise knowledge on some of the matters discussed.

Professor Armstrong's Reminiscences

Speech at the School of Pharmacy

At the recent opening of the new session at the School of Pharmacy, Bloomsbury Square, London, Dr. T. A. Henry was presented with the Hanbury Memorial Medal, and subsequently delivered an address on "The Contribution of the Pharmaceutical Society to Education and Research." Moving a vote of thanks to Dr. Henry for his address, Professor H. E. Armstrong said:

"Coming into this room, I am led to think in the first instance about the time when I began my own studies under a man who commenced his career and gained his preliminary training in pharmacy, the late Sir Edward Frankland. Only this spring I was at Lancaster, and visited the pharmacy in which he worked. I saw the very room in which he worked and the big mortar, with suspended pestle, in which he ground, and ground, and ground, in the way that he describes in his autobiography. I look back to those days as the time when England for the first time secured a safe water supply. In my early days every village had its special brand of typhoid, which it gave to visitors, and in return, whenever its inhabitants went abroad, they were prepared to accept the brands of typhoid produced in the places they visited.

"Frankland and I were engaged in devising and developing the art of so-called water analysis. Frankland applied the method, and the result was that England led the way to making water a safe drink. (Applause.) To-day, if you go abroad even into what are wrongly called the wilds of Sicily, you can drink the water. That was a great pharmaceutical achievement. A little later I remember Daniel Hanbury's frequent visits to me in the laboratory at the London Institution; at that time he was writing the *Pharmacogographia*, and would come down, if not for a chat, to ask some chemical questions. A little later one came much into contact, and sometimes into combat, with a very active member of this Society, Michael Carteighe. He was a very active member of this body, and sometimes a very talkative one. (Laughter.) Then there is a long line of chemists that one has to think of, beginning with Tilden, with whom I worked on terpenes, and Shenstone and Dunstan and Palmer Wynne and Crossley—all noted names in chemistry; so that one's connections with this Society have been very numerous and very delightful.

"It is well known, I think, that I am one of those who have always been a friend to the pharmacist. (Applause.) I have always believed in the retention of the term 'chemist' by the druggist. Only a week or two back I celebrated my golden wedding, and have now to look back on fifty years of happiness with the daughter of a man who in days gone by was a highly-respected pill-roller. To-day, unfortunately, one can scarcely think of you as pill-rollers, and I suppose the art has gone out of pharmacy to that extent. It is all tabloids. (Laughter.)"

Standard Specifications for Pigments

Oil and Colour Chemists at Manchester

The Manchester Section of the Oil and Colour Chemists' Association held its first meeting of the session on Friday, October 14, Mr. A. Hancock presiding, when Mr. C. A. Klein, the president of the Association, delivered a paper entitled, "Standard Specifications for Pigments."

Mr. Klein said it had occurred to him that he might present a short account of the work which had been done in the preparation of British standard specifications for the products of the paint and varnish industries. Dr. J. Newton Friend was the chairman of the special sub-committee concerned with the preparation of these, and Dr. H. H. Morgan, Dr. G. Rudorf, and the speaker were the respective chairmen of the paint, varnish, and pigment panels. It was obvious, said Mr. Klein, that the work of the paint panel was necessarily dependent on the existence of pigment specifications, and the work of that panel had therefore been delayed until that of the pigment panel was nearing completion. A complete range of pigment specifications, it was expected, would be ready by the end of the year, and it was to these specifications that he particularly wished to draw attention.

It was felt that after a short experience of the specifications in the trade it would be possible to improve and modify them so that they would provide a useful working basis both to the manufacturer and user. It was anticipated that some fifty pigment specifications would be available, and, in conception, the scheme was much bolder than anything previously attempted in any other country. In the specifications for dry pigments, it was stated that "Pigments are required to be in the form of a dry soft powder, or in such a condition that they may be readily reduced thereto by crushing under a palette knife, care being taken to avoid any grinding action." Although this clause was only qualitative in character, it would provide a suitable sorting test as between pigments which were soft and those which were in the form of hard lumps. In the clause relating to chemical composition, an effort had been made to prescribe a suitable composition and, at times, to indicate the method by which the material had been prepared. Provision was made for the limitation in quantity of maximum sized particles, and the method by which these were determined was by the use of standard I.M.M. sieves, the final test being on a screen of 200 meshes to the linear inch.

As regards the determination of colour and of staining or reducing power, simple as was the determination of the colour of pigments, it had often given rise to dispute owing to the different methods adopted. They were not yet in the position to eliminate the personal factor, and until that could be done it was necessary to lay down some standard of determination which would limit this error as far as possible. For this purpose, colour determinations were made against a standard which was viewed in diffused light on a clear and colourless glass plate, using contiguous alternate strips not less than three-quarters of an inch broad. One of the main functions of a pigment was to act as a stainer, or, in the case of whites, as reducing agents, and no scheme of testing would be complete without provision being made for the evaluation of staining power. The methods laid down in the British standard specifications represented the work of an active sub-panel which was engaged on this subject for a long time. Two types of staining power tests were recommended as a result. One was for pigments which had been prepared by grinding—ochres, umbers, barytes, mineral black and the like—while the other method was intended to be used for pigments prepared by chemical means or by volatilisation—white lead, zinc oxide, and lead chromes. Mr. Klein also dealt with volatile matter; special specifications for certain pigments such as lithopone and lead chrome; and pastes.

Agricultural Delegates at Billingham

Visit to Nitrogen Fixation Works

THE delegates to the Imperial Agricultural Research Conference were entertained to dinner on Tuesday by the chairman and directors of Imperial Chemical Industries, Ltd., on the occasion of their visit to the nitrogen fixation works of Synthetic Ammonia and Nitrates, Ltd., at Billingham. Among those present were Sir David Milne Watson, Sir Frederick Keeble, Sir Hugh Bell, Sir Arthur Dorman, Sir Robert Robertson, Sir E. J. Russell, and Sir Daniel Hall. In the absence of Sir Alfred Mond, through indisposition, the guests were received by Colonel G. P. Pollitt, D.S.O., who also presided at the dinner. Colonel Pollitt read the address which Sir Alfred had proposed to deliver, in which he said that they had set themselves the ambitious task of supplying the whole Empire with fertilisers, calculated to meet its vast varied and growing needs, and were not content to leave it at that. Under the direction of Sir Frederick Keeble they already possessed a large experimental agricultural station of their own. It had been often stated that Britain had become over-industrialised, but the fertiliser industry would help to restore the balance between industry and agriculture to equity.

Inasmuch as the world continued year by year to be capable of absorbing the vast and ever-increasing output of synthetic nitrogenous fertilisers, it was evident that Britain would not remain content to produce a quantity which, though large in itself, was small in comparison with the world's output and the requirements of the Empire. Britain would not be content with merely participating on the basis of her present production. Additional units were to be erected immediately. The company would endeavour to keep pace with the increased Imperial and world demand. One of the most important subjects which would be undertaken at the research station was the experimental inquiry as to the synthetic fertilisers most suited to the British and overseas requirements. Some soils required mainly one ingredient, some another. Therefore, the producers of the synthetic fertilisers of the future would be engaged in the manufacture of what might be called simple, dual and triple fertilisers. Nitrogen, phosphates and potash formed the trinity.

Industrial Peace Movement

Sir Alfred Mond's Plan

FOLLOWING the conference at the Mansion House on Monday, Sir Alfred Mond has decided to go forward with his proposal for the establishment of a league to press for industrial peace. Its minimum basis of demands will be the progressive Labour programme introduced by Imperial Chemical Industries, Ltd., last week. It is not proposed to formulate an organisation of employers and union leaders with executive powers, but it is hoped the league will embrace all the progressive minds from the ranks of employers and employed. If present conversations are successful a conference will be called in the near future to formulate the league's programme and establish its organisation under the presidency of some national and absolutely impartial figure. The league will have no political entanglements and will not pursue the customary lines of propaganda. Instead, it is intended that the league members, having publicly assented to certain aims, shall consciously and honestly set about realising them in their own industry.

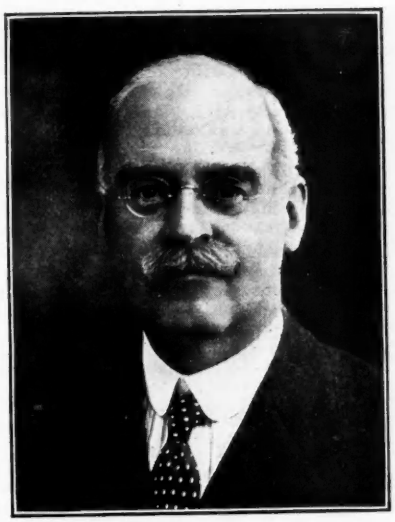
No notion of paid propagandists is in Sir Alfred Mond's mind. Broadly, the aims of the proposed league will include: Organised works councils; higher grades of workers with improved conditions; shareholding schemes; sick pay for six months; holidays with pay; opportunities for technical and managerial training; opportunities for workers with inventive minds; opportunities for workers to secure improved intellectual equipment for their work. Such things would be a minimum and only a beginning of the scheme to establish permanent industrial peace. A number of distinguished industrialists have been interested in this proposal. They include Sir Josiah Stamp and Lord Ashfield, both of whom are on the directorate of Imperial Chemical Industries. Sir Alfred Mond is publishing a book entitled *Industry and Politics*, in order to lay his general principles before the public in detail.

"C.A." Queries

We receive so many inquiries from readers as to technical, industrial, and other points, that we have decided to make a selection for publication. In cases where the answers are of general interest, they will be published; in others, the answers will simply be passed on to the inquirers. Readers are invited to supply information on the subjects of the queries:—

82 (*"White Earth" and "Catalpo White"*).—"We should be much obliged if you could give us a description of 'White Earth' and 'Catalpo White,' and also state from whom they can be obtained."

Resignation of Sir John Brunner



SIR JOHN BRUNNER, WHO HAS RESIGNED HIS POSITION AS A DIRECTOR OF IMPERIAL CHEMICAL INDUSTRIES, LTD.

Cotton Research

Annual Meeting of Association

THE annual meeting of the British Cotton Industry Research Association was held at the Textile Institute, Manchester, on Tuesday, Mr. Kenneth Lee presiding. After reference to the death of Dr. A. W. Crossley, the first director of research, Mr. Lee said of Dr. R. H. Pickard, successor to Dr. Crossley, that he believed strongly in co-operative research. He was a firm believer in the necessity of establishing a broad foundation of knowledge on which to build, but he also believed that research associations, after being allowed a reasonable period for growth, should produce results of real value to the trades for which they worked. He further thought the results of research should be presented in a form in which they could be easily understood. Mr. Kenneth Lee referred to the forthcoming publication of a report in popular phraseology on "Five Years' Progress of the Shirley Institute." It would set out in simple language the work that had been undertaken and the results which had been obtained, and it might be regarded largely as a memorial to Dr. Crossley. The research staff of the Institute now numbered eighty-seven, of whom forty-one were university graduates, and this year the question of the formation of an artificial silk department was to be reopened. The Association had expended some £49,000, or about £1,000 more than in the previous year.

Dr. Pickard, the director of research, gave a report of the work of the Shirley Institute. On the dyeing and printing side of their research the work in the photo-chemical laboratory was becoming more and more concerned with the testing of the fastness to light of dyed fabrics. A method had been published recently which enabled rapid measurements to be made of the quality either of sources of light used for fading tests or of "daylight" lamps. The same procedure could be applied to the precise physical specification of the colour of a fabric and would be used in future work on fading.

From Week to Week

MR. L. GUY RADCLIFFE was elected chairman of the Manchester section of the Institute of Chemistry at a meeting held on Monday.

SIR WILLIAM JAMES LARKE has been appointed by Order of Council dated October 5, to be a member of the Advisory Council to the Committee of the Privy Council for Scientific and Industrial Research.

MR. E. GEORGE EDDY, managing director of B. Hepworth and Co., chemical manufacturers, of Kidderminster and Cleckheaton, has consented to accept nomination as Mayor of Kidderminster for the ensuing year.

MR. J. W. WOOLCOCK, son of Mr. W. J. U. Woolcock, general manager of the Association of British Chemical Manufacturers, has been elected to a War Memorial Studentship in chemistry at Balliol College, Oxford.

THE MAIN CONTRACT FOR THE ERECTION of a new super power generating station at Hams Hall, Birmingham, has been let to International Combustion, Ltd. Babcock and Wilcox are the sub-contractors for the boilers.

PROFESSOR ERNST COHEN, director of the van't Hoff Laboratory of the University of Utrecht, has held his professorship for 25 years. In honour of the occasion a special number of the *Zeitschrift fur Physikalische Chemie* has been dedicated to him.

A NITRATE OF SODA PLANT built according to the plans of Dr. Kupper is to be erected at Oficina San Pedro, for the working of the Banthein process. Experiments have given such indications that it is believed the process will effect appreciable cost reductions.

AFTER MANY VICISSITUDES the Australian Oil Shale Corporation has commenced the commercial production of oil from shale at its plant at Latrobe, Tasmania. At least 40 tons a day will be treated, and it is stated that the difficulties associated with benzine production of the first quality have been overcome.

A REPORT FROM BERLIN states that the German artificial silk cartel is on the verge of joining the international cartel, which is in the course of formation. This, it is believed, will comprise the French Bernheim-Gillet group and Union de Producteurs de Soie Artificielle, as well as the Dupont de Nemours Co. of America, while British Celanese is likely to remain unaffected.

THE AREA SOWN WITH INDIGO on the Madras Presidency up to the end of August is estimated at 29,400 acres, against 40,100 acres at the corresponding time last year. The reduction is general owing to the small demand for the dye as the result of the competition of synthetic material. If the whole crop were manufactured into dye the possible yield would be about 7,100 cwt. against 9,620 cwt. last year.

DR. J. GORDON PARKER will relinquish the position of principal of the Leathersellers' Technical College, London, at the end of the present year, and has secured premises at 17, Leather Market, Bermondsey, London, S.E., where he intends to continue his practice of consulting and analytical chemist to the leather industries. The work of fitting up and equipping the new laboratory is now in progress. It is hoped that everything will be in readiness for his staff of assistants to take possession as from December 1.

ROYAL INSTITUTION lectures in November and December will include the following: Four lectures by Sir William Bragg on "A Year's Work in X-ray Crystal Analysis," on Tuesday, November 22, and subsequent Tuesdays; two lectures by Mr. J. Kewley on "Petroleum Natural Gases and Their Derivatives," on December 8 and 15. The above will all take place at 5.15 p.m. The Christmas lectures (six in number) for juveniles will be delivered by Professor E. N. da C. Andrade, on "Engines," commencing on Thursday, December 29, at 3 p.m.

THE HON. C. STEWART, Canadian Minister of Mines, after attending the League of Nations Conference at Geneva, will turn his attention to the progress being made in Europe in the treatment of lignite and bituminous coal for by-products. He will be joined by Dr. Charles Camsell, Deputy Minister of Mines, and they will visit producing plants in Germany, will look into the work being done by the Fuel Research Board at Greenwich, and will visit plants in operation in England and Scotland. If time permits they will also visit the peat bogs of Holland and Denmark to inquire into the feasibility of profitably developing the extensive deposits of Ontario.

BEET SUGAR NEWS.—The Prees (Salop) branch of the National Farmers' Union has been informed by the Beet Sugar Factory that the Factory cannot agree to the possibility of farmers being allowed to contract for one year only.—The National Farmers' Union has been informed that a preliminary agreement has been signed with Sugar Industry Auxiliaries, of 11, Queen Victoria Street, London, for the erection of a beet sugar factory at Brigg, Lincolnshire, to deal with the 1928 crop of beet.—The Department of Agriculture of the Irish Free State has issued a detailed report of a series of sugar beet experiments carried out last season at 132 centres. Danish, French, Dutch, and German varieties were tested, the two latter proving most satisfactory.

C. A. F. KAHLBAUM, G.m.b.H., is, according to the German journal *Die Chemische Industrie*, in liquidation.

SIR EDWARD BROTHERTON has handed over the ruins of Kirkham Abbey to the Office of Works for preservation for the nation.

THE CANADIAN INDUSTRIAL ALCOHOL CO. has acquired a controlling interest in Robert McNish and Co., Ltd., the Scottish distillery company.

ALBERT JONES, a workman, was fined £5, or 28 days, by the Neath magistrates last week for stealing 3½ cwt. of sheet lead from the works of the Briton Ferry Chemical Co.

SIR OLIVER LODGE has accepted an invitation to deliver the Roscoe lecture before the Literary and Philosophical Society of Liverpool at the Royal Institution on Monday, November 14. His subject will be "Energy."

DURING WORK on a new depot for the Shell-Mex, Ltd., Petroleum Products, in Bridge Street, Brigg, two men were seriously injured on Wednesday when a boiler containing tar macadam burst and threw boiling tar in all directions.

THE SALT DEPOSITS OF NOVA SCOTIA at Malagash have been examined recently, and it is predicted that a large potash deposit will be discovered. Drilling operations will be commenced shortly, and it is hoped that potash will be found at a depth of 600 to 900 ft.

JOSEPH NATHAN AND CO., LTD., proprietors of "Glaxo," announce that Mr. L. J. Nathan, the chairman of the company, has resigned from the board on account of continued ill-health. Mr. Alec. Nathan (the deputy-chairman) has been elected chairman in his place.

THE INTERNATIONAL RED CROSS COMMITTEE of Geneva has decided to summon a meeting of international experts to study the best means of protecting civilian populations against the effects of chemical warfare. The meeting will be held in Brussels on January 16 next.

RECENT WILLS INCLUDE:—Mr. Joseph Gaskell, Rhos-on-Sea, Denbigh, late of Manchester, intestate, £10,702.—Mr. John Tomlinson Sheard, of Sheffield, chief chemist of the Sheffield Gas Co., £4,280.—Mr. William Stubbs, a retired manager of a works of the Salt Union, Ltd., £5,275.

ABOUT 70,000 GERMAN COAL MINERS are now idle, having struck for an increase of wages. Individual employers are said to be ready to compromise with their men, and the management of the I.G. Farbenindustrie mines are understood to have offered a weekly increase of about five shillings.

THE JOINT DYERS' EXECUTIVE gave three months' notice, on Thursday, October 13, to terminate the common agreement of January 1, 1923, made with the Allied Association of Bleachers, Dyers, Printers and Finishers, and affecting the dyeing and finishing industry in Yorkshire, Lancashire, Cheshire, Derbyshire, and parts of Scotland. This has the effect of simultaneously terminating all local or sectional agreements.

THE THIRD CENSUS OF PRODUCTION REPORTS published in the *Board of Trade Journal* have now reached No. 26 (published in the current issue), which deals with metalliferous mines and quarries; salt mines, brine pits and salt works; and slate mines and quarries. Salt works production in 1924 included: table salt, 79,200 tons (£350,000); other sorts of salt, 866,000 tons (£1,414,000); salt content of brine sent to alkali works, 1,020,500 tons (£59,000); other products, value £61,000; total value of output, £1,884,000.

UNIVERSITY NEWS.—*Manchester:* The following appointments have been made: Mr. W. Cartwright, assistant lecturer in metallurgy; Mr. C. Chew, demonstrator in chemical technology.—*Birmingham:* Dr. W. V. Thorpe has been appointed lecturer in bio-chemistry in the department of physiology.—*London:* It was announced at a meeting of the Senate of the University of London on Wednesday that a gift of £50 had been received from Imperial Chemical Industries, Ltd., towards the establishment of the proposed chair of dietetics.

A "NICKEL WEEK," comprising an exhibition of nickel, its alloys and products, together with lectures and discussions, is being held in Paris, at the Conservatoire National des Arts et Métiers, under the auspices of the "Centre d'Information du Nickel." The proceedings commenced on Sunday, October 16, and will continue until Thursday, October 27. The exhibits include sections devoted to nickel and nickel-chrome steels and special high-nickel steels; pure nickel, german silver, white metal, nickel bronze and other nickel alloys; Monel metal (G. and J. Weir, of Paris, being among the exhibitors); heat-resistant nickel-chrome alloys, and similar alloys for electrical resistance purposes; nickel and nickel-steel in the construction of automobiles and aeroplanes; and nickel plating.

Obituary

DR. W. H. SODEAU, D.Sc., F.I.C., F.INST.P., on October 5.

MR. JOHN DIXON BARRASS, B.Sc., research and biological chemist at the Cancer Hospital, Fulham Road, on October 5, aged 56.

MR. A. J. SQUIRES, for 32 years manager of the fertilising plant at the Pilkington works of the United Alkali Co., on October 9.

References to Current Literature

British

ADSORPTION.—The electrical condition of hot surfaces during the adsorption of gases. I. Gold and silver surfaces at temperatures up to 850° C. G. I. Finch and J. C. Stimson. *Proc. Roy. Soc. A.*, October 1, pp. 379–400.

ANALYSIS.—The use of titanous chloride in the volumetric estimation of copper and iron. W. G. Emmett. *J. Chem. Soc.*, September, pp. 2059–2062.

The abnormal reaction of certain aromatic aldehydes with Schiff's reagent. J. B. Shoesmith, C. E. Sosson, and A. C. Hetherington. *J. Chem. Soc.*, September, pp. 2221–2230.

CATALYSIS.—Some speculations in catalytic oxidation reactions. C. R. Downs. *J.S.C.I.*, October 7, pp. 383–386T.

GENERAL.—The routine preparation of low-conductivity water. G. D. Bengough, J. M. Stuart, and A. R. Lee. *J. Chem. Soc.*, September, pp. 2156–2162.

A new method of (absolute) potentiometric titration. B. Cavanagh. *J. Chem. Soc.*, September, pp. 2207–2216.

The rate of absorption of hydrogen chloride in aqueous solutions. H. O. Askew. *J.S.C.I.*, October 7, pp. 386–390T.

ORGANIC.—The action of hydrogen iodide on nitroso-compounds. J. C. Earl and J. Kenner. *J. Chem. Soc.*, September, pp. 2139–2145.

Nitrosation of phenols. IV. 3 : 5-dichloro-phenol. H. H. Hodgson and J. S. Wignall. *J. Chem. Soc.*, September, 2216–2221.

Investigations on the bivalency of carbon. I. The displacement of chlorine from diphenyldichloromethane. *s*-Tetraphenyldimethyl ether. A. M. Ward. *J. Chem. Soc.*, September, pp. 2285–2295.

Jatrophine: A new alkaloid. A. M. B. Villalba. *J.S.C.I.*, October 7, pp. 396–397T.

Arylamine salts of some sulphonic acids of the benzene series. III. *o*-and-*p*-Nitrotoluenesulphonic acids. C. M. Keyworth. *J.S.C.I.*, October 7, pp. 397–398T.

PAINT.—Some physical factors influencing the properties of paint pigments. A. de Waele. *J. Oil and Colour Chem. Assoc.*, September, pp. 232–255.

United States

ANALYSIS.—Determination of carbon disulphide in its emulsions. H. J. Fisher. *Ind. Eng. Chem.*, October 1, pp. 1201–1202.

Evaluation of transformer oils. J. G. Ford. *Ind. Eng. Chem.*, October 1, pp. 1165–1171.

GENERAL.—A chemical concept of the origin and development of life. A preliminary presentation. V. C. Vaughan. *Chemical Reviews*, Vol. IV (2), September, pp. 167–188.

Effect of ethylene on the composition and colour of fruits. E. M. Chace and C. G. Church. *Ind. Eng. Chem.*, October 1, pp. 1135–1139.

Mothproofing chemicals and furs. L. E. Jackson and Helen E. Wassell. *Ind. Eng. Chem.*, October 1, pp. 1175–1180.

Symposium on "Chemistry's Contribution to Automotive Chemistry": Automobile Finishes. H. C. Mougey. Synthetic resins. A. H. V. Mory. Coated textiles. H. Bradshaw. Motor fuels. J. B. Hill. Automotive lubricants. L. W. Parsons. Antifreeze compounds. D. B. Keyes. *Ind. Eng. Chem.*, October 1, pp. 1102–1103, 1106–1109, 1109–1110, 1114–1115, 1116–1119, and 1119–1121.

ORGANIC.—The structure of the methane molecule. V. Henri. *Chemical Reviews*, Vol. IV (2), September, pp. 189–201.

Progress in the structural study of carbohydrates. J. C. Irvine. *Chemical Reviews*, Vol. IV (2), September, pp. 203–229.

Alkyl-nitroguanidines. T. L. Davis and S. B. Luce. *J. Amer. Chem. Soc.*, September, pp. 2303–2305.

Action of the Grignard reagent on the alkylbarbituric acids. A. W. Dox. *J. Amer. Chem. Soc.*, September, pp. 2275–2279.

German

ANALYSIS.—The potential curve in potentiometric precipitation-titrations. E. Lange and E. Schwarz. *Z. physikal. Chem.*, Vol. 129 (1/2), pp. 111–127.

The determination of the "chlorine number" in effluents. H. Bach and K. Gläser. *Z. angewandte Chem.*, October 6, pp. 1115–1116.

A potentiometric method for the separation of tin and antimony. H. Brintzinger and F. Rodis. *Z. anorg. u. allg. Chem.*, Vol. 166 (1–3), September 21, pp. 53–59.

The analysis of polythionate solutions. A. Kurtenacker and E. Goldbach. *Z. anorg. u. allg. Chem.*, Vol. 166 (1–3), September 21, pp. 177–189.

Potentiometric determination of iron and aluminium by means of bases. P. Drossbach. *Z. anorg. u. allg. Chem.*, Vol. 166 (1–3), September 21, pp. 225–230.

GENERAL.—The chemical development of lignites. J. Marcusson. *Z. angewandte Chem.*, October 6, pp. 1104–1106.

The preparation and properties of porous silicas. H. Wolter. *Z. angewandte Chem.*, October 6, pp. 1113–1115.

ORGANIC.—New types of synthesis with diazomethane. F. Arndt. *Z. angewandte Chem.*, October 6, pp. 1099–1101.

Connections between the fluorescence and reddening of sulphite-cellulose. E. Hägglund and T. Johnson. *Z. angewandte Chem.*, October 6, pp. 1101–1104.

PHYSICAL.—The determination of solubilities by potentiometric titration and the "insoluble" form of silver chloride. F. R. Hahn and R. Schulze. *Z. anorg. u. allg. Chem.*, Vol. 166 (1–3), September 21, pp. 213–218.

Miscellaneous

ANALYSIS.—The use of perchloric acid as an oxidising agent in the determination of sulphur in rubber. E. Kahane. *Ann. Chim. Analytique*, September, pp. 261–264 (in French).

A new method of determination of naphthalene in gases. J. Bonte. *Bull. Soc. Chim. Belg.*, August-September, pp. 485–490 (in French).

Some potentiometric titrations for neutralisation of acid and alkali and their comparison. M. Matsui and M. Asai. *J. Soc. Chem. Ind. Japan*, August, pp. 142–145B (in English).

The use of A.C. galvanometers for conductometric titration and estimation of fixed ammonia. M. Matsui and M. Asai. *J. Soc. Chem. Ind. Japan*, August, pp. 145–147B (in English).

DYESTUFFS.—Cyanine dyestuffs. I. A new synthesis of pinacyanols. II. The preparation of pinacyanol with trioxymethylene. T. Ogata. *Proc. Imp. Acad. Japan*, June, pp. 334–335, 336–338 (in German).

GENERAL.—Deodorisation and decolorisation of the phenols of lignite oil. A. Mailhe. *Bull. Soc. Chim.*, August, pp. 1062–1064 (in French).

The decomposition of vegetable waxes. A. Mailhe. *Bull. Soc. Chim.*, August, pp. 1056–1061 (in French).

Physical chemistry and the road problem. G. Baume. *Bull. Soc. Chim. Belg.*, August-September, pp. 469–484 (in French).

On the decomposition of soya bean protein. VI and VII. The decomposition of soya bean protein by organic acids under pressure. VIII. The decomposition of soya bean protein by the Japanese acid clay. M. Mashino and T. Shishido. *J. Soc. Chem. Ind. Japan*, August, pp. 147B, 147–148B, and 148B (in English).

OILS.—Contribution to the study of the pastes resulting from the neutralisation of oils. Vizern and Guillot. *Ann. Chim. Analytique*, September 15, pp. 257–261 (in French).

ORGANIC.—The mechanism of the Grignard reaction in the indole series. R. Majima and T. Hoshino. *Proc. Imp. Acad. Japan*, June, pp. 339–341 (in German).

On the condensation products of phenols and aldehydes. VII. Some properties of the initial condensation product formed by using ammonia as catalyst. VIII. Decomposition products of the intermediate compound (first section). T. Shono. *J. Soc. Chem. Ind. Japan*, August, pp. 139–140B, 140–142B (in English).

Patent Literature

The following information is prepared from published Patent Specifications and from the Illustrated Official Journal (Patents) by permission of the Controller to H.M. Stationery Office. Printed copies of full Patent Specifications accepted may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at 1s. each.

Abstracts of Complete Specifications

277,394. Organic Compounds, Manufacture and Production of. J. Y. Johnson, London. From I. G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, March 13, 1926.

Aromatic hydrocarbons and phenols or tar fractions containing them may be converted into lower aromatic hydrocarbons or phenols by passing the vapour, mixed with a large proportion of water vapour, over catalysts with hydrating and dehydrogenating properties. The reaction is effected at 300°–500° C., and the nature of the decomposition is influenced by the catalyst, the temperature, and other conditions of working. In the production of benzene and its nearest homologues from their higher homologues or from polynuclear aromatic hydrocarbons, hydrogenation catalysts such as nickel, cobalt, iron, or copper, may be employed. Nickel, cobalt, and iron are particularly suitable for splitting up nuclei and eliminating alkyl groups, while copper is particularly suitable for the latter purpose. Mixtures containing compounds of the alkali metals, alkaline earth metals, and earth metals, including glucinum and magnesium, or zinc and its compounds may be used, as well as oxides of titanium, vanadium, chromium, and manganese. The materials to be treated should be purified from sulphur, arsenic, and metallic carbonyls. The substance may be subjected to a preliminary hydrogenation. In an example, a mixture of *o*-cresol vapour and steam is passed at 450° C. over a catalyst obtained by soaking bauxite with copper nitrate and heating to 250° C. in a current of hydrogen until the copper salt is completely reduced. The product is a mixture of *o*-cresol and phenol. Other examples are given of the treatment of naphthalene with a nickel catalyst, and of a catalyst obtained by reducing a mixture of ammonium molybdate and zinc oxide. The products are mainly benzene and its homologues.

277,398. Dyes. B. Wylam, J. E. G. Harris, H. A. E. Drescher and J. Thomas, and Scottish Dyes, Ltd., Earl's Road, Grangemouth, Scotland. Application dates, April 9, 22, and 23, 1926, and January 10, 1927.

The process is an improvement on Specifications Nos. 247,787 and 261,139 (see The Chemical Age, Vol. XIV, p. 334, and Vol. XV, p. 619). Derivatives of quinones, including vat dyestuffs of the anthraquinone series, and also of the indigo, indigoid, and thioindigo type are obtained by mixing a quinone body with a metal, a tertiary base, a substance which in the presence of a tertiary base yields a sulphuric anhydride derivative of the base (*e.g.*, sulphuric, anhydride, oleum, chlorsulphonic acid, and alkyl-chlorsulphonates) and one of the following : anhydrides and imides of phthalic and succinic acids, and organic acyl chlorides such as phosgene, ethylchloroformate, acetyl chloride, benzoyl chloride, and paratoluol-sulphonic chloride. The reaction may be effected in an inert atmosphere, and the metal may be added last. Pyridine may be employed as the base, and zinc as the metal. Examples are given of the interaction of (1) dimethoxy-dibenzanthrone, phthalic anhydride, pyridine, zinc, and chlorsulphonic acid; (2) thioindigo. phthalic anhydride, pyridine, zinc, and methylchlor-sulphonate; (3) indigo, phthalimide, pyridine, zinc, and methylchlorsulphonate; (4) dimethoxy-dibenzanthrone, pyridine, acetylchloride, iron, and methylchlorsulphonate, and several others of a similar nature.

277,404. Cracking, Catalysing, and Hydrogenating Carbonaceous Materials, Apparatus for. A. E. Bianchi, 11, Via Marsala, Milan, and G. Guardabassi, Rho, Milan, Italy. Application date, June 8, 1926.

This apparatus is suitable for treating oils, tar, naphtha, schist, brown coal, etc. The material is fed from the hopper B into a trough A, in which two sets of paddles P mounted on shafts N, N^1 are rotated. The trough A communicates at its opposite end, through an opening d^1, with a smaller trough C below, and an outlet E is provided at the further end of the trough C. A gas chamber F is provided above and in free communication with the trough A, and is connected at one end through a conduit f^1 to pipes G, G^1 leading to longitudinal pipes H, H^1 provided with filtering screens J, J^1. The blades P are set obliquely to the shafts so that the material is conveyed along. A large number of small metal chains T are suspended from the reticulated screen t^1 and occupy the whole lower part of the chamber F. These chains are kept in continual vibration by the paddles P, and are coated with

Fig. 2

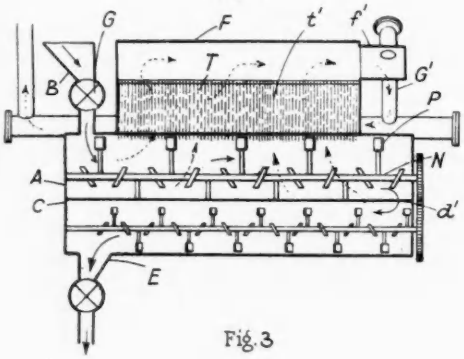
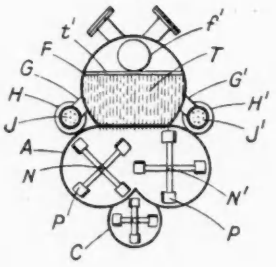


Fig. 3



277,404

a catalyst so that the vapour is brought into intimate contact with the catalyst, and any suspended dust is also removed. The whole apparatus is heated externally, and a thin film of the material is maintained on the inner surfaces of the troughs. The catalyst employed may be reduced nickel for hydrogenating the vapour from the distillation of a fatty substance, or magnesium or iron oxide for dehydrogenating petroleum or petroleum oils. Other catalysts employed include copper oxide mixed with silicate jelly, or nickel oxide or nitrate.

277,419. Oil and Coal, Treatment of, and the Production of Liquid Hydrocarbons Therefrom. F. Lamplough, Thalia Works, Grosvenor Road, Hanwell, Middlesex, and A. E. Hodgson, 170, Piccadilly, London, W.1. Application dates, June 15 and August 11, 1926.

Coal is ground in oil to a degree of fine dispersion so that it does not readily settle on storage or on passage through pumps, pipes, etc., and the mixture is subjected to heat treatment at a pressure of 100 to 600 lb. per square inch and a temperature of 400°-500° C. The liquid is fractionally distilled and the specific gravity of the lighter fractions is found to be lower than that of the corresponding lighter fractions of the oil employed. The distillation may be effected by releasing the hot oil from the pressure to which it has been subjected. The heaviest of the distilled fractions may be used as a binder for briquetting finely divided coal, and before distillation the mixture may be maintained under pressure in a settling vessel so that solid material may be removed.

277,586. NEW FORMYL DERIVATIVE OF 2-OXY 4-AMINOPHENYL-ARSINIC ACID, AND SALTS THEREOF, MANUFACTURE OF. Les Etablissements Poulenc Frères, and E. Fourneau, 86, Rue Vieille du Temple, Paris. International Convention date, October 29, 1926.

4-amino-2-oxyphenyl-arsinic acid is boiled for three hours with 98 per cent. formic acid, and the formyl derivative is obtained on cooling. The ammoniacal salt is very soluble in water, and insoluble in alcohol.

NOTE.—Abstracts of the following specifications which are now accepted, appeared in THE CHEMICAL AGE when they became open to inspection under the International Convention :—253,908 (M. Speichert), relating to treatment of lead-tin alloys from waste smelting works material, see Vol. XV, p. 23 (Metallurgical Section) ; 256,205 (Soc. of Chemical Industry in Basle), relating to dyestuffs, see Vol. XV, p. 356 ; 256,933 (H. Wittek), relating to extraction of neutral oils from tar, tar-oil, or pitch, see Vol. XV, p. 403 ; 259,999 (I. G. Farbenindustrie Akt.-Ges.), relating to preparations of vat dyestuffs, see Vol. XV, p. 621 ; 261,422 (I. G. Farbenindustrie Akt.-Ges.), relating to anthraquinone nitriles, see Vol. XVI, p. 92 ; 261,770 (I. G. Farbenindustrie Akt.-Ges.), relating to pyrazolone azo dyestuffs, see Vol. XVI, p. 143 ; 266,684 (Soc. Chimique des Usines du Rhône), relating to treating acetic acid liquor, see Vol. XVI, p. 449 ; 269,199 (Preparation Industrielle des Combustibles and A. Hoffmann), relating to phosphatic fertilisers, see Vol. XVI, p. 579 ; 270,348 (Soc. of Chemical Industry in Basle), relating to dyestuffs, see Vol. XVII, p. 39.

International Specifications not yet Accepted

276,001. DESTRUCTIVE HYDROGENATION. I. G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, August 11, 1926.

Catalysts for the destructive hydrogenation of carbonaceous materials comprise a mixture of silver, copper, zinc, or cadmium with boron, aluminium, silicon, titanium, vanadium, tantalum, chromium, molybdenum, tungsten, or cobalt. The member from the first group should not exceed 10 per cent. An example is given of the treatment of cresylic acid.

276,010. HYDROGENATION OF PHENOLS. Chemische Fabrik auf Actien, vorm. E. Schering, 170, Mullerstrasse, Berlin. International Convention date, August 16, 1926.

The condensation products of alkylated phenols and ketones are hydrogenated to obtain thymol, its isomers or homologues. A metal phenolate may be present in addition to the hydrogenation catalyst, to reduce the decomposition temperature. Thus, the product obtained from *m*-cresol and acetone is hydrogenated in the presence of nickel and aluminium-3-methyl-6-isopropylene-phenolate to obtain thymol and then stereoisomeric menthols.

276,012. SYNTHETIC DRUGS. I. G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, August 13, 1926.

To obtain 1-amino-3-tertiaryamino-2-propanols, a secondary base is caused to act on either a 3-halogen-2-oxypropyl-phthalimide, the phthalic acid residue being finally split off, or on the saponification products 3-halogen-2-oxypropylamines. Several examples are given.

276,295. AMMONIA OXIDATION. F. G. Liljenroth, 14, Eriksbergsgatan, Stockholm. International Convention date, August 19, 1926.

The products from the catalytic combustion of ammonia and oxygen are partly condensed, and the uncondensed part is used to dilute the ammonia-oxygen mixture. The uncondensed gas consists of oxygen and/or nitric oxide.

276,297. PHOSPHATIC MANURES. L. Adelantado, 76, Paseo de Gracia, Barcelona, Spain. International Convention date, August 19, 1926.

Finely divided natural phosphate 2 molecular parts, is treated with potassium or ammonium sulphate 3 molecular parts and sulphuric acid 3 molecular parts. The product is washed with hot water, and the acid lyes neutralised, concentrated, and crystallised. The treated phosphate may be mixed with an equal quantity of untreated phosphate, and the acid lyes, mother liquors, etc., may be used for treating more raw phosphate.

276,313. ALKALI HYDRIDES. Deutsche Gold- und Silber-Scheideanstalt vorm. Roessler, 7, Weissfrauenstrasse, Frankfort-on-Main, Germany. International Convention date, August 23, 1926.

Sodium is distributed over a solid diluent such as sodium chloride, iron powder, sodium carbonate, charcoal, etc., by grinding them together or mixing above the melting point of the metal, and treated with hydrogen above 200° C. The reaction may be carried out in an inclined rotary tube into which alkali metal and diluent are first introduced, and subsequently alkali metal only, the resulting hydride serving as the diluent.

276,350. DOUBLE SALTS ; FERTILISERS. Azogens Soc. Anon. per la Fabbricazione Dell'Ammoniaca Sintetica e Prodotti Derivati, C. Toniolo, and B. Tanzi, 18, Viale L. Maino, Milan, Italy. International Convention date, August 19, 1926.

To obtain a non-hygroscopic double salt, ammonium sulphate is mixed with anhydrous calcium nitrate in the presence of two molecules of water for one of nitrate. The water may be added as liquid, steam, or moist air, or hydrated calcium nitrate $Ca(NO_3)_2\ 4H_2O$, prepared by cooling a 70 per cent. nitrate solution, may be used. The ratio of ammonium sulphate to calcium nitrate should be less than 2:1, and other fertilisers may be added to the mixture.

276,353. DYES. I. G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, August 19, 1926.

To obtain 2 : 5 : 6-trichlor-3-aminotoluene-4-sulphonic acid, *p*-toluene-sulphonic acid is chlorinated, and the product nitrated and reduced. Diazotised 2 : 5 : 6-trichlor-3-aminotoluene-4-sulphonic acid is then coupled with a 1-sulphophenyl-5-pyrazolone substituted in the 3-position by a methyl, carboxyl, or carboxylic ester group, examples of which are given. In an example, 1:3'-sulpho-6'-chlorphenyl-3-methyl-5-pyrazolone is employed, giving a yellow dye of exceptional fastness to light.

LATEST NOTIFICATIONS.

278,651. Manufacture and production of vat dyestuffs. I. G. Farbenindustrie Akt.-Ges. October 8, 1926.

278,672. Process for the manufacture of alkyl and aralkyl derivatives of diphenolisatine. Hoffmann-La Roche and Co., Akt.-Ges. F. October 9, 1926.

278,684. Treatment of hydrated cellulose. I. G. Farbenindustrie Akt.-Ges. October 5, 1926.

278,696. Prevention of livering in pigmented carbohydrate-compound compositions. Du Pont De Nemours and Co., E. I. October 5, 1926.

278,698. Manufacture and production of condensation products of urea. I. G. Farbenindustrie Akt.-Ges. October 8, 1926.

278,716. Process for precipitating viscose solutions. I. G. Farbenindustrie Akt.-Ges. October 5, 1926.

278,728. Process for purifying vat-dyestuffs. Soc. of Chemical Industry in Basle. October 6, 1926.

278,729. Manufacture of chlorine-substitution products of 1-amino-2 : 4-dimethylbenzene. I. G. Farbenindustrie Akt.-Ges. October 6, 1926.

278,735. Manufacture and production of cellulose acetate solutions and plastics. I. G. Farbenindustrie Akt.-Ges. April 24, 1925.

278,747. Process of producing zinc salts. Metallbank und Metallurgische Ges. Akt.-Ges. October 7, 1926.

278,752. Treatment of fibres or fibrous materials with aqueous liquids. I. G. Farbenindustrie Akt.-Ges. May 22, 1925.

278,761. Manufacture of chlorine-substitution products of 1-amino-2 : 4-dimethylbenzene. I. G. Farbenindustrie Akt.-Ges. October 11, 1926.

Specifications Accepted with Date of Application

251,651. Therapeutic agents, Manufacture of. I. G. Farbenindustrie Akt.-Ges. May 1, 1925.

255,900. Azo-dyestuffs, Manufacture of. I. G. Farbenindustrie Akt.-Ges. July 25, 1925. Addition to 231,529.

256,622. Fused cement and gases containing phosphorus, Manufacture of. W. Kyber. August 4, 1925.

258,835. Manufacturing steel in open hearth furnaces, Process for. W. Mathesius and H. Mathesius. September 22, 1925.

260,236. Continuous distillation of crude carbon bisulphide to obtain pure carbon bisulphide, Process for. I. G. Farbenindustrie Akt.-Ges. October 24, 1925.

262,136. Refining steel and pig iron, Method of and apparatus for. J. Maximoff, M. S. de Costa, and R. P. D. Krebs (known as L. Gallicanne). November 28, 1925.

265,624. Catalytic oxidation of carbon monoxide. I. G. Farbenindustrie Akt.-Ges. February 8, 1926.
266,735. Crude nitrate of soda, Treatment of. I. G. Farbenindustrie Akt.-Ges. February 24, 1926.
278,037. Carbazides and thiocarbazides of the naphthalene series. Manufacture and production of. British Dyestuffs Corporation, Ltd., G. M. Dyson, F. A. Mason, and A. Renshaw. May 25, 1926.
278,039. Dyestuffs and dyestuff intermediates. W. Smith, J. Thomas, and Scottish Dyes, Ltd. May 26, 1926.
278,041. Cracking, catalysing, and hydrogenation of carbonaceous materials. A. E. Bianchi and G. Guardabassi. May 27, 1926.
278,047. Dibenzanthronyls, Manufacture and production of. J. Y. Johnson and I. G. Farbenindustrie Akt.-Ges. May 31, 1926. Addition to 203,533.
278,093. Lead chloride or basic chloride, Treatment of, and application thereof to the winning of lead from ores, residues, and the like. S. C. Smith and Chemical and Metallurgical Corporation, Ltd. July 2, 1926.
278,100. Dinaphthyl-dicarboxylic acids, Process for the manufacture of. W. Carpmael. (*I. G. Farbenindustrie Akt.-Ges.*) July 6, 1926.
278,102. Vat dyestuffs and intermediates for vat dyestuffs, Manufacture of. British Dyestuffs Corporation, Ltd., A. Shepherdson, and A. J. Hailwood. July 7, 1926.
278,112. Dyestuffs and intermediates, Manufacture of. R. F. Thomson, J. Thomas, and Scottish Dyes, Ltd. July 13, 1926.
278,164. Treating aluminium for the purpose of rendering it weldable, Process of. A Kirchhof. September 16, 1926.
278,211. Alcohol, Process for the distillation of. E. C. R. Marks. (*U.S. Industrial-Alcohol Co.*) November 29, 1926.
278,235. Cracking hydrocarbons, Process of and apparatus for. H. J. Jansen, jun. February 7, 1927.

Applications for Patents

Algemeene Norit Maatschappij. Producing activated carbon. 27,318. October 14. (Germany, October 16, 1926.)
Alox Chemical Corporation. Atomisable mobile fuel product. 26,823. October 10. (United States, March 2.)
Alox Chemical Corporation. Production of emulsion from partially-oxidised petroleum wax. 26,824. October 10. (United States, March 23.)
Carpmael, A., and I. G. Farbenindustrie Akt.-Ges. Protecting grain in storage from vermin. 26,979. October 11.
Corson, M. G. Methods of manufacturing hydrocarbons from calcium carbide. 27,198. October 13. (United States, October 14, 1926.)
Daudt, H. W. Production of tetra-ethyl lead. 27,330. October 14. (United States, October 15, 1926.)
Daudt, H. W. Preparation of tetra-alkyl lead. 27,331. October 14. (United States, January, 20.)
Du Pont de Nemours and Co., E. I., and Nobel Industries, Ltd. Nitrocellulose solutions, etc. 27,339. October 14.
Feige, R. Apparatus for carrying out chemical reactions. 27,441. October 15. (Germany, October 15, 1926.)
Grinsted, H., and Salmon, P. Explosives. 26,926. October 11.
I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Production of a reversible paste from rubber latex. 26,791. October 10.
I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Vat dyestuffs. 26,929. October 11.
I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Production of hydrocyanic acid. 27,200. October 13.
I. G. Farbenindustrie Akt.-Ges. and Carpmael, A. Production of mixed crystals containing potassium and ammonium. 27,201. October 13.
I. G. Farbenindustrie Akt.-Ges. and Carpmael, A. Process for treating coke oven gas. 27,202. October 13.
I. G. Farbenindustrie Akt.-Ges. and Carpmael, A. Production of wetting-agents, etc. 27,425. October 15.
I. G. Farbenindustrie Akt.-Ges. and Carpmael, A. Dyeing with vat dyestuffs. 27,426. October 15.
I. G. Farbenindustrie Akt.-Ges. and Carpmael, A. Process for minimising corrosive action of sulphuric acid, etc. 27,427. October 15.
I. G. Farbenindustrie Akt.-Ges. Manufacture of chlorine-substitution products of 1-amino-2 : 4-dimethylbenzene. 26,937. October 11. (Germany, October 11, 1926.)
I. G. Farbenindustrie Akt.-Ges. Electrically insulating-composition 26,977. October 11. (Germany, November 6, 1926.)
I. G. Farbenindustrie Akt.-Ges. Electrically-driven spinning-spindles. 27,071. October 12. (Germany, November 12, 1926.)
I. G. Farbenindustrie Akt.-Ges. Heating carbonaceous materials. 27,199. October 13. (Germany, October 28, 1926.)
I. G. Farbenindustrie Akt.-Ges. Manufacture of artificial material and articles from alkyl cellulose. 27,211. October 13.
I. G. Farbenindustrie Akt.-Ges. Catalysts. 27,285. October 14. (Germany, March 3.)
I. G. Farbenindustrie Akt.-Ges. Dyestuffs. 27,293. October 14. (Germany, October 23, 1926.)
I. G. Farbenindustrie Akt.-Ges. Process for desulphurising viscose silk. 27,294. October 14. (Germany, October 23, 1926.)
I. G. Farbenindustrie Akt.-Ges. Manufacture of solutions of gelatin in organic solvents. 27,406. October 15. (Germany, October 20, 1926.)
Imperial Chemical Industries, Ltd., and Jenkins W. J. Nitrocellulose products, etc. 26,952, 26,953. October 11.
Imperial Chemical Industries, Ltd., and Jenkins, W. J. Nitrocellulose solutions. 27,080. October 12.
Selden Co. Catalytic oxidation of organic compounds. 26,920. October 11. (United States, August 26.)
Selden Co. Catalytic apparatus. 26,925. October 11. (United States, October 27, 1926.)
Selden Co. Contact sulphuric acid process. 26,928. October 11. (United States, August 24.)
Soc. Anon. des Distilleries des Deux-Sèvres. Separation of fatty acids. 26,935. October 11. (Belgium, May 23.)
Williams, T. E. Explosives, etc. 26,749. October 10.

New Biochemical Buildings at Birmingham

THE new biological block of buildings of the University of Birmingham, opened on Thursday by the Prime Minister, will house, among other departments, that of brewing and the biochemistry of fermentation. One of the objects of the department is to advance research in the many fields open to investigation in connection with the fermentation industries, and the professor possesses wide powers with regard to aiding the investigations of competent workers by finding accommodation in his laboratories and in other ways. The high reputation of the department for training and research built up by the late Professor Adrian Brown has been well maintained by the present head of the department, Professor A. R. Ling. A large number of papers dealing principally with the carbohydrates have been published. Among these may be mentioned papers on the chemistry of starch. In addition to this work, researches have been conducted on glyogen pectins, and hemicelluloses, and on various other subjects.

Control of Tin Prices

THE scheme to control the world price of tin which has been under discussion among British, American, and Dutch interests during the past week, has now been brought to a very advanced stage, and a public announcement may be expected within the next week. Under the scheme a Producers' Association will be formed which will fix the world price of tin for at least a year ahead. The first price at which it will be fixed will be £300 a ton. Great Britain controls within the British Empire and elsewhere 50 to 60 per cent. of the world's total production of tin. America is responsible for 20 to 25 per cent., and the greater part of the remaining supplies come from the Dutch East Indies and China. The price which the new Producers' Association fixes will, therefore, be accepted throughout the world.

Vacant Appointments

Head of the Chemistry Department of the Rutherford Technical College, Newcastle-upon-Tyne, £500—£20—£600. The Director of Education, Education Office, Newcastle-upon-Tyne. October 29.

Professor of Organic Chemistry, Pure and Applied, in the University of Sydney, New South Wales, £1,100. The Agent-General for New South Wales, Australia House, Strand, London, W.C.2. November 9.

Biochemist for the Development Department of the Government of Madras, to carry out research work on cotton at Coimbatore. Rs.750—Rs.50—Rs.950 per calendar month. The Secretary to the High Commissioner for India, 42, Grosvenor Gardens, London, S.W.1. October 29.

Inspector of Alkali, etc., Works, under the Alkali, etc., Works Regulations Act, 1906, £500—£25—£800, plus cost-of-living bonus. The Director of Establishments, Ministry of Health, Whitehall, London, S.W. October 29.

Demonstrator in Inorganic Chemistry in the Department of Chemistry, University of Leeds. £250. The Registrar. October 26.

Research Assistant for Blast Furnace Reactions Research at the Imperial College of Science and Technology under Professor W. A. Bone, F.R.S. £250. The National Federation of Iron and Steel Manufacturers, Caxton House (East), Tothill Street, Westminster, London, S.W.1. October 25.

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

ACID ACETIC, 40% TECH.—£19 per ton.

ACID BORIC, COMMERCIAL.—Crystal, £34 per ton; powder, £36 per ton.

ACID HYDROCHLORIC.—3s. 9d. to 6s. per carboy d/d, according to purity, strength, and locality.

ACID NITRIC, 80° TW.—£21 10s. to £27 per ton, makers' works, according to district and quality.

ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations: 140° Tw., Crude Acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.

AMMONIA ALKALI.—£6 15s. per ton f.o.r. Special terms for contracts.

BISULPHITE OF LIME.—£7 10s. per ton, f.o.r. London, packages extra.

BLEACHING POWDER.—Spot, £9 10s. per ton d/d; Contract, £8 10s. per ton d/d, 4-ton lots.

BORAX, COMMERCIAL.—Crystals, £19 10s. to £20 per ton; granulated, £19 per ton; powder, £21 per ton. (Packed in 2-cwt. bags, carriage paid any station in Great Britain.)

CALCIUM CHLORIDE (SOLID).—£5 to £5 5s. per ton d/d carr. paid.

COPPER SULPHATE.—£25 to £25 10s. per ton.

METHYLATED SPIRIT 61 O.P.—Industrial, 2s. 5d. to 2s. 10d. per gall.; pyridinised industrial, 2s. 7d. to 3s. per gall.; mineralised 3s. 6d. to 3s. 10d. per gall.; 64 O.P., 1d. extra in all cases; prices according to quantity.

NICKEL SULPHATE.—£38 per ton d/d.

NICKEL AMMONIA SULPHATE.—£38 per ton d/d.

POTASH CAUSTIC.—£30 to £33 per ton.

POTASSIUM BICHROMATE.—4½d. per lb.

POTASSIUM CHLORATE.—3⅞d. per lb., ex wharf, London, in cwt. kegs.

SALAMMONIAC.—£45 to £50 per ton d/d. Chloride of ammonia, £37 to £45 per ton, carr. paid.

SALT CAKE.—£3 15s. to £4 per ton d/d. In bulk.

SODA CAUSTIC, SOLID.—Spot lots delivered, £15 2s. 6d. to £18 per ton, according to strength; 20s. less for contracts.

SODA CRYSTALS.—£5 to £5 5s. per ton, ex railway depots or ports.

SODIUM ACETATE 97/98%.—£21 per ton.

SODIUM BICARBONATE.—£10 10s. per ton, carr. paid.

SODIUM BICHROMATE.—3½d. per lb.

SODIUM BISULPHITE POWDER, 60/62%.—£17 10s. per ton delivered for home market, 1-cwt. drums included; £15 10s. f.o.r. London.

SODIUM CHLORATE.—2¾d. per lb.

SODIUM NITRITE, 100% BASIS.—£27 per ton d/d.

SODIUM PHOSPHATE.—£14 per ton, f.o.b. London, casks free.

SODIUM SULPHATE (GLAUBER SALTS).—£3 12s. 6d. per ton.

SODIUM SULPHIDE CONC. SOLID, 60/65.—£13 5s. per ton d/d. Contract, £13. Carr. paid.

SODIUM SULPHIDE CRYSTALS.—Spot, £8 12s. 6d. per ton d/d. Contract, £8 10s. Carr. paid.

SODIUM SULPHITE, PEA CRYSTALS.—£14 per ton f.o.b. London, 1-cwt. kegs included.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—7½d. to 8d. per lb. Crude 60's, 2s. 3d. to 2s. 5d. per gall.

ACID CRESYLIC 99/100.—2s. 11d. to 3s. per gall. 97/99.—2s. 4½d. to 2s. 5½d. per gall. Pale, 95%, 2s. 3d. to 2s. 4d. per gall. Dark, 90%, 1s. 9d. to 1s. 10d. per gall.; 95%, 2s. 1d. to 2s. 2d.

ANTHRACENE.—A quality, 2½d. per unit. 40%. £5 per ton.

ANTHRACENE OIL, STRAINED.—8d. to 8½d. per gall. Unstrained, 7½d. to 8d. per gall.

BENZOLE.—Crude 65's, 9½d. to 9⅝d. per gall., ex works in tank wagons. Standard Motor, 1s. 1½d. to 1s. 2½d. per gall., ex works in tank wagons. Pure, 1s. 5d. to 1s. 6d. per gall., ex works in tank wagons.

TOLUOLE.—90%, 1s. 4d. to 1s. 8d. per gall. Firm. Pure, 1s. 6d. to 2s. per gall.

XYLOL.—1s. 3d. to 1s. 10d. per gall. Pure, 1s. 4d. to 1s. 5d. per gall.

CREOSOTE.—Cresylic, 20/24%, 10d. to 11d. per gall.; middle oil, 8d. to 9d. per gall. Heavy, 8½d. to 9d. per gall. Standard specification, 7½d. to 7¾d. ex works. Salty, 7d. per gall. less 1½%.

NAPHTHA.—Crude, 9d. to 10d. per gall. Solvent 90/160, 9½d. to 10d. per gall. Solvent 95/160, 1s. 3d. to 1s. 4d. per gall. Solvent 90/190, 9½d. to 1s. 3d. per gall.

NAPHTHALENE CRUDE.—Drained Creosote Salts, £5 per ton. Whizzed or hot pressed, £8 per ton.

NAPHTHALENE.—Crystals, £11 10s. to £13 10s. per ton. Quiet. Flaked, £12 10s. to £13 per ton, according to districts.

PITCH.—Medium soft, 84s. to 87s. 6d. per ton, f.o.b., according to district. Market firm.

PYRIDINE.—90/140, 5s. 9d. to 6s. 6d. per gall. 90/180, 4s. to 5s. per gall. Heavy, 4s. to 4s. 6d. per gall.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated:

ACID AMIDONAPHTHOL DISULPHO (1-8-2-4).—10s. 9d. per lb.

ACID ANTHRANILIC.—6s. per lb. 100%.

ACID BENZOIC.—1s. 9d. per lb.

ACID GAMMA.—4s. 9d. per lb.

ACID H.—3s. per lb.

ACID NAPHTHIONIC.—1s. 6d. per lb.

ACID NEVILLE AND WINTHER.—4s. 9d. per lb.

ACID SULPHANILIC.—8½d. per lb.

ANILINE OIL.—7½d. per lb. naked at works.

ANILINE SALTS.—7½d. per lb. naked at works.

BENZALDEHYDE.—2s. 3d. per lb.

BENZIDINE BASE.—3s. 3d. per lb. 100% basis d/d.

BENZOIC ACID.—1s. 8½d. per lb.

o-CRESOL 29/31° C.—5½d. per lb.

m-CRESOL 98/100%.—2s. 7½d. per lb. Only limited inquiry.

p-CRESOL 32/34° C.—2s. 8½d. per lb. Only limited inquiry.

DICHLORANILINE.—2s. 3d. per lb.

DIMETHYLANILINE.—1s. 11d. per lb.

DINITROBENZENE.—9d. per lb. naked at works. £75 per ton.

DINITROCHLORBENZENE.—£84 per ton d/d.

DINITROTOLUENE.—48/50° C. 8d. per lb. naked at works. 66/68° C. 9d. per lb. naked at works.

DIPHENYLAMINE.—2s. 10d. per lb. d/d.

a-NAPHTHOL.—2s. per lb. d/d.

B-NAPHTHOL.—10d. per lb. d/d.

a-NAPHTHYLAMINE.—1s. 3d. per lb.

B-NAPHTHYLAMINE.—3s. per lb.

o-NITRANILINE.—5s. 9d. per lb.

m-NITRANILINE.—3s. per lb. d/d.

p-NITRANILINE.—1s. 8d. per lb.

NITROBENZENE.—6d. per lb. naked at works.

NITRONAPHTHALENE.—1s. 3d. per lb.

R. SALT.—2s. 2d. per lb.

SODIUM NAPHTHIONATE.—1s. 8½d. per lb. 100% basis d/d.

o-TOLUIDINE.—7½d. per lb.

p-TOLUIDINE.—2s. 2d. per lb. naked at works.

m-XYLIDINE ACETATE.—2s. 11d. per lb. 100%.

N. W. Acid.—4s. 9d. per lb. 100%.

Wood Distillation Products

ACETATE OF LIME.—Brown, £9 10s. to £10 per ton. Good demand. Grey, £14 10s. to £15 per ton. Liquor, 9d. per gall.

CHARCOAL.—£6 to £9 per ton, according to grade and locality. Foreign competition severe.

IRON LIQUOR.—1s. 3d. per gall. 32° Tw. 1s. per gall. 24° Tw.

RED LIQUOR.—9d. to 10d. per gall.

WOOD CREOSOTE.—1s. 9d. per gall. Unrefined.

WOOD NAPHTHA, MISCIBLE.—3s. 11d. to 4s. 3d. per gall. Solvent, 4s. 3d. per gall.

WOOD TAR.—£4 to £5 per ton.

BROWN SUGAR OF LEAD.—£40 15s. per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6½d. to 1s. 5½d. per lb., according to quality; Crimson, 1s. 4d. to 1s. 6d. per lb., according to quality.

ARSENIC SULPHIDE, YELLOW.—1s. 9d. per lb.

BARYTES.—£3 10s. to £6 15s. per ton, according to quality.

CADMIUM SULPHIDE.—2s. 6d. to 2s. 9d. per lb.

CARBON BISULPHIDE.—£20 to £25 per ton, according to quantity.

CARBON BLACK.—5½d. per lb., ex wharf.

CARBON TETRACHLORIDE.—£45 to £50 per ton, according to quantity, drums extra.

CHROMIUM OXIDE, GREEN.—1s. 1d. per lb.

DIPHENYLGUANIDINE.—3s. 9d. per lb.

INDIARUBBER SUBSTITUTES, WHITE AND DARK.—5½d. to 6½d. per lb.

LAMP BLACK.—£35 per ton, barrels free.

LEAD HYPOSULPHITE.—9d. per lb.

LITHOPONE, 30%.—£22 10s. per ton.

MINERAL RUBBER "RUBPRON."—£13 12s. 6d. per ton, f.o.r. London.

SULPHUR.—£9 to £11 per ton, according to quality.

SULPHUR CHLORIDE.—4d. to 7d. per lb., carboys extra.

SULPHUR PRECIP. B.P.—£47 10s. to £50 per ton.

THIOCARBAMIDE.—2s. 6d. to 2s. 9d. per lb. carriage paid.

THIOCARBANILIDE.—2s. 1d. to 2s. 3d. per lb.

VERMILION, PALE OR DEEP.—6s. to 6s. 3d. per lb.

ZINC SULPHIDE.—1s. per lb.

Pharmaceutical and Photographic Chemicals

ACID, ACETIC, PURE, 80%.—£39 per ton ex wharf London in glass containers.

ACID, ACETYL SALICYLIC.—2s. 3½d. to 2s. 4½d. per lb.

ACID, BENZOIC B.P.—2s. to 3s. 3d. per lb., according to quantity. Solely ex Gum, 1s. to 1s. 3d. per oz., according to quantity.

ACID, BORIC B.P.—Crystal, 40s. to 43s. per cwt.; powder, 44s. to 47s. per cwt., according to quantity. Carriage paid any station in Great Britain, in ton lots.
ACID, CAMPHORIC.—19s. to 21s. per lb.
ACID, CITRIC.—1s. 6¾d. to 1s. 7¼d. per lb., less 5%.
ACID, GALLIC.—2s. 8d. per lb. for pure crystal, in cwt. lots.
ACID, PYROGALLIC, CRYSTALS.—7s. 3d. per lb. Resublimed, 8s. 3d. per lb.
ACID, SALICYLIC, B.P. PULV.—1s. 2½d. to 1s. 4d. per lb.; Technical.—11½d. to 1s. per lb. Good demand.
ACID, TANNIC B.P.—2s. 8d. to 2s. 10d. per lb.
ACID, TARTARIC.—1s. 3¼d. per lb., less 5%.
AMIDOL.—9s. per lb., d/d.
ACETANILIDE.—1s. 6d. to 1s. 8d. per lb. for quantities.
AMIDOPYRIN.—8s 6d. per lb.
AMMONIUM BENZOATE.—3s. 3d. to 3s. 6d. per lb., according to quantity.
AMMONIUM CARBONATE B.P.—£37 per ton. Powder, £39 per ton in 5 cwt. casks. Resublimated: 1s. per lb.
ATROPINE SULPHATE.—9s. 6d. per oz.
BARBITONE.—5s. 9d. to 6s. per lb.
BENZONAPHTHOL.—3s. 3d. per lb. spot.
BISMUTH CARBONATE.—9s. 9d. to 9s. 10d. per lb.
BISMUTH CITRATE.—9s. 6d. to 9s. 9d. per lb.
BISMUTH SALICYLATE.—8s. 9d. to 9s. per lb.
BISMUTH SUBNITRATE.—7s. 9d. to 8s. per lb.
BISMUTH NITRATE.—5s. 9d. to 6s. per lb.
BISMUTH OXIDE.—13s. 9d. to 14s. per lb.
BISMUTH SUBCHLORIDE.—11s. 9d. to 12s. per lb.
BISMUTH SUBGALLATE.—7s. 9d. to 8s. per lb. Extra and reduced prices for smaller and larger quantities respectively; Liquor Bismuthi B.P. in W. Qts. 1s. 1d. per lb.; 12 W. Qts. 1s. per lb.; 36 W. Qts. 11½d. per lb.
BORAX B.P.—Crystal, 24s. to 27s. per cwt.; powder, 26s. to 29s. per cwt. according to quantity. Carriage paid any station in Great Britain, in ton lots.
BROMIDES.—Potassium, 1s. 9½d. to 1s. 10½d. per lb.; sodium, 2s. to 2s. 1d. per lb.; ammonium, 2s. to 2s. 3d. per lb.; granulated, ½d. per lb. less; all spot Large quantities at lower rates.
CALCIUM LACTATE.—1s. 2d. to 1s. 3½d. per lb.
CAMPHOR.—Refined flowers, 2s. 11d. to 3s. 1d. per lb., according to quantity; also special contract prices.
CHLORAL HYDRATE.—3s. 2d. to 3s. 4d. per lb.
CHLOROFORM.—2s. 3d. to 2s. 7½d. per lb., according to quantity.
CREOSOTE CARBONATE.—6s. per lb.
ETHERS.—S.G. ·730—1s. 1½d. to 10½d., drums; other gravities at proportionate prices.
FORMALDEHYDE.—£39 per ton, in barrels ex wharf.
GUAIACOL CARBONATE.—4s. 9d. to 5s. per lb.
HEXAMINE.—2s 3d. to 2s. 6d. per lb.
HOMATROPINE HYDROBROMIDE.—30s. per oz.
HYDRASTINE HYDROCHLORIDE.—English make offered at 120s. per oz.
HYDROGEN PEROXIDE (12 VOLS.).—1s. 4d. per gallon, f.o.r. makers' works, naked. Winchesters, 2s. 11d. per gal. B.P., 10 vols., 2s. 3d. per gal. In carboys. Winchesters, 2s. 11d. to 3s. 9d. per gal.; 20 vols., 4s. 3d. per gal.; Winchesters, 5s. per gal. Special prices for larger quantities.
HYDROQUINONE.—2s. 11d. to 3s. 2d. per lb., in cwt. lots.
HYPOPHOSPHITES.—Calcium, 3s. 6d. per lb., for 28-lb. lots; potassium, 4s. 1d. per lb.; sodium, 4s. per lb.
IRON AMMONIUM CITRATE.—B.P., 2s. 1d. to 2s. 4d. per lb. Green, 2s. 4d. to 2s. 9d. per lb. U.S.P., 2s. 2d. to 2s. 5d. per lb.
IRON PERCHLORIDE.—18s. to 20s. per cwt., according to quantity.
MAGNESIUM CARBONATE.—Light commercial, £31 per ton net.
MAGNESIUM OXIDE.—Light commercial, £62 10s. per ton, less 2½%; Heavy Commercial, £21 per ton, less 2½%; in quantity lower; Heavy Pure, 2s. to 2s. 3d. per lb., in 1 cwt. lots.
MENTHOL.—A.B.R. recrystallised B.P., 17s. 9d. per lb. net; Synthetic detached crystals, 9s. to 12s. 6d. per lb., according to quantity; Liquid (95%), 11s. 3d. per lb.
MERCURIALS B.P.—Up to 1 cwt. lots, Red Oxide, 7s. 6d. to 7s. 7d. per lb., levig., 7s. to 7s. 1d. per lb.; Corrosive Sublimate, Lump, 5s. 9d. to 5s. 10d. per lb., Powder, 5s. 2d. to 5s. 3d. per lb.; White Precipitate, Lump, 5s. 11d. to 6s. per lb., Powder, 6s. to 6s. 1d. per lb., Extra Fine, 6s. 1d. to 6s. 2d. per lb.; Calomel, 6s 4d. to 6s. 5d. per lb.; Yellow Oxide, 6s. 10d. to 6s. 11d. per lb.; Persulph., B.P.C., 6s. 1d. to 6s. 2d. per lb.; Sulph. nig., 5s. 10d. to 5s. 11d. per lb. Special prices for larger quantities.
METHYL SALICYLATE.—1s. 9d. per lb.
METHYL SULPHONAL.—8s. 9d. to 9s. per lb.
METOL.—11s. per lb. British make.
PARAFORMALDEHYDE.—1s. 9d. per lb. for 100% powder.
PARALDEHYDE.—1s. 4d. per lb
PHENACETIN.—2s. 6d. to 2s. 9d. per lb.
PHENAZONE.—4s. to 4s. 3d. per lb.
PHENOLPHTHALEIN.—6s. 6d. to 6s. 9d. per lb.
POTASSIUM BITARTRATE 99/100% (Cream of Tartar).—98s. per cwt less 2½%.
POTASSIUM CITRATE.—B.P.C., 1911: 1s. 8d. to 1s. 11d. per lb.; U.S.P.: 1s. 11d. to 2s. 2d. per lb.
POTASSIUM FERRICYANIDE.—1s. 9d. per lb., in cwt. lots.
POTASSIUM IODIDE.—16s. 8d. to 17s. 2d. per lb. according to quantity.
POTASSIUM METABISULPHITE.—6d. per lb., 1-cwt. kegs included, f.o.r. London.
POTASSIUM PERMANGANATE.—B.P. crystals, 6d. per lb., spot.
QUININE SULPHATE.—1s. 8d. to 1s. 9d. per oz. bulk in 100 oz. tins.
RESORCIN.—3s. 9d. to 4s. per lb., spot.
SACCHARIN.—55s. per lb.; in quantity lower.
SALOL.—2s. 4d. per lb.
SODIUM BENZOATE, B.P.—1s. 8d. to 1s. 11d. per lb.
SODIUM CITRATE, B.P.C., 1911.—1s. 8d. to 1s. 11d. per lb., B.P.C., 1923—2s. to 2s. 1d. per lb. for 1-cwt. lots. U.S.P., 1s. 11d. to 2s. 2d. per lb., according to quantity.
SODIUM FERROCYANIDE.—4d. per lb., carriage paid.
SODIUM HYPOSULPHITE, PHOTOGRAPHIC.—£15 5s. per ton, d/d consignee's station in 1-cwt. kegs.
SODIUM NITROPRUSSIDE.—16s. per lb.
SODIUM POTASSIUM TARTRATE (ROCHELLE SALT).—90s. to 95s. per cwt. Crystals, 5s. per cwt. extra.
SODIUM SALICYLATE.—Powder, 1s. 7½d. to 1s. 9d. per lb. Crystal, 1s. 8½d. to 1s. 10d. per lb.
SODIUM SULPHIDE, PURE RECRYSTALLISED.—10d. to 1s. 2d. per lb.
SODIUM SULPHITE, ANHYDROUS.—£27 10s. to £28 10s. per ton, according to quantity. Delivered U.K.
SULPHONAL.—6s. 9d. to 7s. per lb.
TARTAR EMETIC, B.P.—Crystal or powder, 2s. 1d. to 2s. 3d. per lb.
THYMOL.—Puriss., 10s. to 10s. 3d. per lb., according to quantity. Firmer. Natural, 14s. 3d. per lb.

Perfumery Chemicals

ACETOPHENONE.—6s. 6d. per lb.
AUBEPINE (EX ANETHOL), 10s. 6d. per lb
AMYL ACETATE.—2s. per lb.
AMYL BUTYRATE.—5s. 3d. per lb.
AMYL SALICYLATE.—3s. per lb.
ANETHOL (M.P. 21/22° C.).—5s. per lb.
BENZYL ACETATE FROM CHLORINE-FREE BENZYL ALCOHOL.—2s.
BENZYL ALCOHOL FREE FROM CHLORINE.—2s. per lb per lb.
BENZALDEHYDE FREE FROM CHLORINE.—2s. 6d. per lb.
BENZYL BENZOATE.—2s. 6d. per lb.
CINNAMIC ALDEHYDE NATURAL.—16s. 3d. per lb.
COUMARIN.—9s. 9d. per lb.
CITRONELLOL.—13s. 9d. per lb.
CITRAL.—8s. 3d. per lb.
ETHYL CINNAMATE.—6s. 6d. per lb.
ETHYL PHTHALATE.—2s. 9d. per lb.
EUGENOL.—8s. per lb.
GERANIOL (PALMAROSA).—18s. 6d. per lb.
GERANIOL.—6s. 6d. to 10s. per lb.
HELIOTROPINE.—4s. 9d. per lb.
ISO EUGENOL.—13s. 6d. per lb.
LINALOL.—Ex Bois de Rose, 15s. per lb. Ex Shui Oil, 10s. 6d. per lb.
LINALYL ACETATE.—Ex Bois de Rose, 18s. 6d. per lb. Ex Shui Oil, 14s. 6d. per lb.
METHYL ANTHRANILATE.—8s. 6d. per lb.
METHYL BENZOATE.—4s. per lb.
MUSK KETONE.—35s. per lb.
MUSK XYLOL.—8s. per lb.
NEROLIN.—4s. 6d. per lb.
PHENYL ETHYL ACETATE.—12s. per lb.
PHENYL ETHYL ALCOHOL.—10s. 6d. per lb.
RHODINOL.—32s. 6d. per lb.
SAFROL.—1s. 6d. per lb.
TERPINEOL.—1s. 8d. per lb.
VANILLIN.—17s. per lb.

Essential Oils

ALMOND OIL.—11s. per lb.
ANISE OIL.—2s. 9d. per lb.
BERGAMOT OIL.—26s. per lb.
BOURBON GERANIUM OIL.—14s. per lb.
CAMPHOR OIL.—75s. per cwt.
CANANGA OIL, JAVA.—17s. per lb.
CINNAMON OIL LEAF.—6d. per oz.
CASSIA OIL, 80/85%.—7s. 3d. per lb.
CITRONELLA OIL.—Java, 1s. 9d. per lb., c.i.f. U.K. port for shipment over 1928. 1s. 7½d. per lb., prompt shipment from Java. Ceylon, pure, 1s. 8d. per lb.
CLOVE OIL.—5s. per lb.
EUCALYPTUS OIL, AUSTRALIAN.—2s. 2d. per lb.
LAVENDER OIL.—Mont Blanc, 38/40%, Esters, 17s. per lb.
LEMON OIL.—7s. 6d. per lb.
LEMONGRASS OIL.—4s. 6d. per lb.
ORANGE OIL, SWEET.—11s. 3d. per lb.
OTTO OF ROSE OIL.—Anatolian, 30s. per oz. Bulgarian, 75s. per oz.
PALMA ROSA OIL.—9s. 3d. per lb.
PEPPERMINT OIL.—Wayne County, 15s. 9d. per lb.; Japanese, 8s. per lb.
PETITGRAIN OIL.—7s. 6d. per lb.
SANDALWOOD OIL.—Mysore, 26s. 6d. per lb.; 90/95%, 16s. 6d. per lb.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to* THE CHEMICAL AGE *by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.

London, October 20, 1927.

THE increased volume of business has been maintained during the past week and the outlook is much brighter. The prices remain unchanged and firm.

General Chemicals

ACETONE.—Unchanged at £63 per ton, with slight variations for larger quantities.
ACID ACETIC is in good inquiry at £37 to £38 per ton for 80%.
ACID FORMIC is in fair demand, price unchanged.
ACID LACTIC.—Unchanged.
ACID OXALIC is in very good demand at £30 per ton. The forward position continues very firm.
ALUMINA SULPHATE is still in steady demand, but supplies are becoming short.
AMMONIUM CHLORIDE.—Unchanged.
BARIUM CHLORIDE remains unchanged at £8 10s. to £9 per ton.
COPPER SULPHATE.—Unchanged.
EPSOM SALTS.—In fair demand at about £4 7s. 6d. per ton.
FORMALDEHYDE is in active demand, price unchanged at about £40 per ton.
LEAD ACETATE continues steady at about £42 10s. for white, with £1 per ton less for brown.
LEAD NITRATE.—Unchanged.
LIME ACETATE.—Unchanged.
METHYL ACETONE remains quiet at about £54 to £55 per ton.
POTASSIUM CHLORATE is still in good request and price remains firm.
POTASSIUM PERMANGANATE is in small inquiry at 6¼d. to 6½d. per lb. for B.P. grade.
POTASSIUM PRUSSIATE is in steady demand, price unchanged.
SODIUM ACETATE.—Price unchanged at £18 10s. per ton.
BICHROMATE OF SODA is in good demand at 3¼d. per lb.
SODA CHLORATE is in good demand at about £25 per ton. The forward position remains firm.
SODA NITRITE is in better inquiry at £19 10s. per ton.
SODA PRUSSIATE remains firm at 4½d. per lb. Supplies are on the short side.
SULPHIDE OF SODA.—Unchanged.
ZINC SULPHATE.—Unchanged.

Coal Tar Products

There is little change to report in the values of coal tar products from last week, the market still remaining quiet.
90's BENZOL remains unchanged, and is quoted at about 1s. 4d. to 1s. 5d. per gallon, on rails, while the motor quality is quoted at 1s. 1½d. to 1s. 2½d. per gallon.
PURE BENZOL is quoted at 1s. 7½d. to 1s. 8½d. per gallon, on rails.
CREOSOTE OIL remains firm, being quoted at about 7½d. per gallon, on rails in the North. The price in London is about 8½d. per gallon.
CRESYLIC ACID is worth about 2s. 2d. per gallon, ex works, for the pale quality 97/99%. The dark quality, 95/97%, is worth about 1s. 11d. per gallon.
SOLVENT NAPHTHA is quoted at about 10d. per gallon, on rails.
HEAVY NAPHTHA is unchanged, being worth about 11d. per gallon, on rails.
NAPHTHALENES are steady, at about £6 16s. to £7 per ton for the 74/76 quality, and about £8 to £8 15s. per ton for the 76/78 quality.
PITCH remains steady with few transactions having taken place, The price can be quoted at around 85s., f.o.b.

Latest Oil Prices

LONDON, October 19.—LINSEED OIL closed quiet at 2s. 6d. to 5s. per ton decline. Spot, ex mill, £31; October, £30; November-December, £30 5s.; January-April, £30 10s.; May-August, £30 17s. 6d. RAPE OIL was steady. Crude extracted, £43 10s.; technical refined, £45 10s., naked, ex wharf. COTTON OIL was quiet. Refined common edible, £42; Egyptian crude, £35 10s., deodorised, £44. TURPENTINE quiet and 3d. to 6d. per cwt. lower. American spot, 37s. 9d.; November-December, 38s. 9d.; January-April, 40s.

HULL, October 19.—LINSEED OIL.—Spot to April, £30 17s. 6d. per ton, naked. COTTON OIL.—Bombay crude, £34; Egyptian crude, £35; edible refined, £38 15s.; technical, £37 15s.; deodorised, £40 15s. per ton, naked. PALM KERNEL OIL.—Crushed, 5½ per cent., £38 15s. per ton, naked. GROUNDNUT OIL.—Crushed/extracted, £42 10s.; deodorised, £46 10s. per ton. SOYA OIL.—Extracted and crushed, £35; deodorised, £38 10s. per ton. RAPE OIL.—Crude/extracted, £43; refined, £45 per ton, net, cash terms, ex mill. CASTOR OIL and COD OIL unchanged.

South Wales By-Products

THE improvement in South Wales by-product activities is being maintained. Crude tar has a steady demand at from 60s. to 65s. a ton, while refined tars have a steady market, coke oven tar selling at 8½d. to 9d. a gallon, and gasworks tar at 8d. to 8½d. a gallon. Creosote has a good demand at 7d. to 7¾d. per gallon, f.o.r. maker's works, and 10d. to 1s. a gallon delivered in barrels. Crude naphthalene is quiet, with prices ranging from £4 10s. to £5 per ton. Heavy and solvent naphthas are quiet, with prices at 9d. to 10d. per gallon f.o.r. maker's works. Pitch remains inactive and the market appears to be little affected by export. Patent fuel and coke have a good export and home demand, patent fuel ranging from 23s. to 24s. 6d., f.o.b., best foundry coke 37s. 6d. to 40s., and other sorts at 27s. 6d. to 37s. 6d.

Appeal Against Injunction

IN the Court of Appeal, Royal Courts of Justice, London, on Tuesday, the hearing was begun by the Master of the Rolls and Lords Justices Sargant and Lawrence of an appeal by Mr. M. Freedman against an order by Mr. Justice Astbury in the action of the Palm Olive Co. (of England), Ltd., *v.* Freedman. Plaintiffs in the latter action are the sole distributors in this country of Palm Olive soap, which is manufactured by a Canadian company. They supplied the defendant, Mr. Morris Freedman. By agreement Mr. Freedman contracted not to sell at less than the fixed price of 6d. per cake. In fact, it was stated, he sold at 5d., and the plaintiffs obtained an injunction restraining him from continuing to break the agreement. Mr. Freedman now appealed on the ground that the agreement was unreasonable, as being in restraint of trade and against public policy, and on the ground that the plaintiffs had themselves broken the agreement.

The Use of Buell Combustion Patents

WITH reference to the recent statements that have appeared with regard to the association between Babcock and Wilcox and the Buell Combustion Co., Ltd., the latter state that Babcock and Wilcox have acquired the sole full and exclusive right to make and sell all burners and accessories under the patents respectively for use only with water-tube boilers, and the right to use the same with water-tube boilers, and that Babcock and Wilcox shall use their organisation to the best advantage to further sales of apparatus made under the patents. Babcock and Wilcox are at liberty to supply burners and accessories and installations of any other type or design in any case where they shall consider it desirable, but they must immediately inform the Buell Combustion Co., who will be at liberty to tender for the contract with articles manufactured under the Buell patents, such articles to be manufactured by Babcock and Wilcox. The company also states that Mr. J. G. Robertson, a representative of Babcock and Wilcox, Ltd., has joined the board of the Buell Combustion Co. in the interests of Babcock and Wilcox.

Coagulation, Structure and Plasticity of Crude Rubber

AT the annual general meeting of the Institution of the Rubber Industry (London Section), held on October 12, Dr. O. de Vries read a paper on "Coagulation, Structure and Plasticity of Crude Rubber." A large part of Dr. de Vries's paper was devoted to the composition of latex and methods of producing coagulation, after which he turned to the effects of the structural elements of the serum upon the plasticity of rubber. There were, he pointed out, three elements in the serum: (1) the dry rest from the latex; (2) substances precipitated upon coagulation; (3) substances absorbed by the rubber particles. The influence on plasticity of the first two groups would appear to be small in the case of fresh rubber, although with regard to the first group it was found that a film of extracted rubber became weaker and an unextracted film got harder upon keeping. The influence of the third group was difficult to ascertain, as the elements were not easy to extract, and research was still going on in that direction. All the work on the crude rubber could not, however, be done, concluded the speaker, on the estate side, as work was done under tropical conditions which would not permit of certain experiments, which could better be done on the manufacturing side.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to* THE CHEMICAL AGE *by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing the firm's independent and impartial opinions.

Glasgow, October 19, 1927.

BUSINESS in the heavy chemical market continues fairly satisfactory, inquiry being received for both home and export business. There is no change in price of any importance to record, although one or two seasonal articles are easier.

Industrial Chemicals

ACETONE, B.G.S.—Quoted £58 to £61 per ton, ex store, according to quantity.

ACID ACETIC.—98/100%, glacial, £56 to £67 per ton, according to quality and packing, c.i.f. U.K. ports; 80% pure, £37 10s. per ton, ex wharf; 80% technical, £37 10s. per ton, ex wharf.

ACID BORIC.—Crystal, granulated or small flakes, £34 per ton; powder, £36 per ton, packed in bags, carriage paid U.K. stations.

ACID CARBOLIC, ICE CRYSTALS.—Quoted 7⅞d. per lb., f.o.b. U.K. ports, but could probably be obtained at slightly less.

ACID CITRIC, B.P. CRYSTALS.—Now offered at 1s. 6½d. per lb., less 5%, ex wharf.

ACID HYDROCHLORIC.—Usual steady demand. Arsenical quality, 4s. 9d. per carboy. Dearsenicated quality, 6s. 3d. per carboy, ex works.

ACID NITRIC, 80%.—Quoted £23 5s. per ton, ex station, full truck loads.

ACID OXALIC.—Continental material unchanged at 3⅛d. per lb., ex wharf. Spot material quoted 3¼d. per lb., ex store.

ACID SULPHURIC, 144°.—£3 12s. 6d. per ton; 168°, £7 per ton, ex works, full truck loads. Dearsenicated quality, 20s. per ton more.

ACID TARTARIC, B.P. CRYSTALS.—In little demand and price nominally at 1s. 2½d. per lb., less 5% ex wharf.

ALUMINA SULPHATE, 17/18%, IRON FREE.—Spot material quoted £5 12s. 6d. per ton, ex store. On offer for early delivery at £5 5s. per ton, c.i.f. U.K. ports.

ALUM POTASH.—Lump quality quoted £8 5s. per ton, c.i.f. U.K. ports; crystal meal, 10s. per ton less. Lump quality on spot offered at £9 per ton, ex store.

AMMONIA ANHYDROUS.—Unchanged at about 9d. per lb., carriage paid. Containers extra and returnable.

AMMONIA CARBONATE.—Lump, £37 per ton; powdered, £39 per ton, packed in 5-cwt. casks, delivered, or f.o.b. U.K. ports.

AMMONIA LIQUID, 880°.—Unchanged at about 2½d. to 3d. per lb., delivered according to quantity.

AMMONIA MURIATE.—Grey galvanisers' crystals of British manufacture unchanged at £23 to £24 per ton, ex station. Continental on offer at £19 15s. per ton, c.i.f. U.K. ports. Fine white crystals quoted £17 10s. per ton, c.i.f. U.K. ports.

ARSENIC, WHITE POWDERED.—Spot material unchanged at about £21 5s. per ton, ex store. Quoted £20 7s. 6d. per ton, ex wharf, prompt despatch from mines.

BARIUM CARBONATE, 98/100%.—Continental material unchanged at about £7 10s. per ton, c.i.f. U.K. ports.

BARIUM CHLORIDE, 98/100%.—Large white crystals quoted £6 17s. 6d. per ton, c.i.f. U.K. ports.

BLEACHING POWDER.—Contract price to consumers, £8 per ton, ex station, minimum 4-ton lots. Spot material 10s. per ton extra. Continental on offer at £7 5s. per ton, ex wharf.

BORAX.—Granulated, £19 10s. per ton; crystals, £20 per ton; powdered, £21 per ton, carriage paid U.K. ports.

CALCIUM CHLORIDE.—English manufactured price unchanged at £5 to £5 5s. per ton, ex station, with a slight reduction for contracts. Continental offered at £3 15s. per ton, c.i.f. U.K. ports.

COPPERAS, GREEN.—Unchanged at about £3 10s. per ton, f.o.r. works, or £4 12s. 6d. per ton, f.o.b. U.K. ports, for export.

COPPER SULPHATE.—British material now on offer at £23 15s. per ton, ex store, spot delivery. Continental quoted £22 10s. per ton, ex wharf.

FORMALDEHYDE, 40%.—Rather cheaper. Quotations from Continent now quoted £37 5s. per ton, c.i.f. U.K. ports. Spot material available at £49 per ton, ex store.

GLAUBER SALTS.—English material unchanged at £4 per ton, ex store or station. Continental quoted £2 15s. per ton, c.i.f. U.K. ports.

LEAD, RED.—Imported material on offer at about £28 per ton, ex store.

LEAD, WHITE.—Quoted £28 10s. per ton, ex store.

LEAD ACETATE.—White crystals on offer from the Continent at £40 per ton, c.i.f. U.K. ports; brown, about £38 15s. per ton, c.i.f. U.K. ports. Spot material on offer at £43 5s. per ton, ex store.

MAGNESITE, GROUND CALCINED.—Quoted £8 10s. per ton, ex store, in moderate demand.

POTASH CAUSTIC.—88/92%.—Solid quality quoted £28 15s. per ton, c.i.f. U.K. ports, minimum 15-ton lots. Under 15-ton lots, £29 10s. per ton; liquid, £15 per ton, minimum 15-ton lots. Under 15-ton lots £15 7s. 6d. per ton, c.i.f. U.K. ports.

POTASSIUM BICHROMATE.—Unchanged at 4½d. per lb., delivered.

POTASSIUM CARBONATE, 96/98%.—Unchanged at £27 5s. per ton, ex wharf, prompt shipment. Spot material quoted £28 10s. per ton, ex store; 80/85%, calcined quality on offer at £20 10s. per ton, c.i.f. U.K. ports.

POTASSIUM CHLORATE, 99/100%.—On offer from the Continent at £25 10s. per ton, c.i.f. U.K. ports, for powdered quality; crystals, 30s. per ton extra.

POTASSIUM NITRATE.—Quoted £20 per ton, c.i.f. U.K. ports. Spot material available at £21 per ton, ex store.

POTASSIUM PERMANGANATE, B.P. CRYSTALS.—Quoted 6½d. per lb., ex store, spot delivery.

POTASSIUM PRUSSIATE (YELLOW).—Unchanged at about 6½d. per lb., ex store, spot delivery. Offered from the Continent at 6⅜d. per lb., ex wharf.

SODA CAUSTIC.—Powdered, 98/99%, £19 7s. 6d. per ton; 76/77%, £15 10s. per ton; 70/72%, £14 10s. per ton, carriage paid station, minimum 4-ton lots on contract. Spot material 10s. per ton extra.

SODIUM ACETATE.—On offer from the Continent at £18 per ton, c.i.f. U.K. ports. British material quoted £21 5s. per ton, ex store.

SODIUM BICARBONATE.—Refined recrystallised quality £10 10s. per ton, ex quay or station. M.W. quality, 30s. per ton less.

SODIUM BICHROMATE.—Quoted 3½d. per lb. delivered buyers' works.

SODIUM CARBONATE (SODA CRYSTALS).—£5 to £5 5s. per ton, ex quay or station; powdered or pea quality, £1 7s. 6d. per ton; alkali, 58%, £8 12s. 6d. per ton, ex quay or station.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £9 10s. per ton, ex store. Minimum 4-ton lots. Continental on offer at about £8 2s. 6d. per ton, ex wharf, prompt shipment; pea crystals of British manufacture quoted £15 5s. per ton, ex station 4-ton lots.

SODIUM NITRITE, 100%.—Quoted £19 10s. per ton, ex store.

SODIUM PRUSSIATE (YELLOW).—In moderate demand and price unchanged at about 4½d. per lb., ex store. Offered for prompt shipment from the Continent at 4⅜d. per lb., ex wharf.

SODIUM SULPHATE (SALTCAKE).—Price for home consumption, £3 7s. 6d. per ton, ex works.

SODIUM SULPHIDE.—Prices for English material as follows:—60/62%, solid £10 10s. per ton; broken, £11 10s. per ton; flake, £13 5s. per ton; crystals, 31/34%, £7 10s. per ton to £8 5s. per ton, according to quality, delivered your works, minimum 4-ton lots on contract. Prices for spot delivery 5s. per ton higher for solid, 2s. 6d. per ton for crystals. Offered from the Continent at about £9 5s. per ton, c.i.f. U.K. ports; broken, 15s. per ton extra.

SULPHUR.—Flowers, £12 per ton; roll, £10 15s. per ton; rock, £10 12s. 6d. per ton; floristella, £9 10s. per ton; ground American, £9 5s. per ton; ex store. Prices nominal.

ZINC CHLORIDE.—British material, 98/100%, quoted £24 15s. per ton, f.o.b. U.K. ports; 98/100%, solid on offer from the Continent at about £21 15s. per ton, c.i.f. U.K. ports; powdered, 20s. per ton extra.

ZINC SULPHATE.—Continental material quoted £11 15s. per ton, ex wharf.

NOTE.—The above prices are for bulk business and not to be taken as applicable to small parcels.

Intermediates

BENZALDEHYDE.—2s. 3d. per lb. Packages extra. Some inquiries.

TOLUIDINE MIXED.—1s. 3d. per lb. Packages extra. Some inquiries.

ORTHO TOLUIDINE.—8d. per lb. Some inquiries.

H. ACID.—3s. per lb. 100%. Some inquiries.

DIMETHYLANILINE.—1s. 11d. per lb., packages extra. Some inquiries.

BETA NAPHTHOL.—10d. per lb. Some inquiries.

ALPHA NAPHTHYLAMINE.—1s. 3d. per lb. Some inquiries.

Dumping of Artificial Silk in U.S.

THE United States Treasury Department has notified an importer of Italian artificial silk that it will take no action on the complaints made by some domestic manufacturers last autumn that Italian yarns were being "dumped" in the United States. The Department's letter says that the situation now with respect to value does not justify it in proceeding to the consideration of the question of injury to domestic manufacturers. Prices of domestic artificial silk are very firm.

Manchester Chemical Market

(From Our Own Correspondent).

Manchester, October 20, 1927.

The movement of heavy chemical products here since last week has continued on a satisfactory scale—satisfactory, that is, relative to the state of the demand up to the time of the slight revival in buying activity early last month. So far as the home trade in chemicals is concerned, however, there is plenty of room for the improvement which would automatically result from a recovery in the Lancashire textile industry.

Heavy Chemicals

Sulphide of sodium is still showing signs of a steadier feeling, and the 60-65 per cent. solid material is maintained at about £10 5s. per ton, with commercial on offer at £8 5s. to £8 10s.; in neither case, however, has there been any apparent expansion in the demand. A moderate trade is passing in chlorate of soda, current values of which are from 2¾d. to 2⅞d. per lb. Caustic soda remains firm at from £14 10s. to £16 10s. per ton, according to quality, and the demand for this material is about maintained at its recent level. Phosphate of soda keeps steady on the whole at from £12 10s. to £12 15s. per ton, although there has only been a quiet call this week. Offers of bicarbonate of soda are maintained at round £10 10s. per ton and a fair trade is being put through. There is a moderate demand for prussiate of soda and prices are steadier at 4⅜d. per lb. There is not much stirring in the case of hyposulphite of soda, but quotations are still in the neighbourhood of £16 10s. per ton for photographic quality and £9 15s. for commercial. So far as saltcake is concerned, there has been a shade more activity in this section of the market and values are steady at about £3 10s. per ton. Glauber salts are slow at £3 5s. per ton. Nitrite of soda meets with a moderate demand at steady prices, about £19 2s. 6d. per ton being quoted here this week. A steady trade is being done in alkali and quotations are firm at £6 15s. per ton. With regard to bichromate of soda, values are held at round 3d. per lb.

Carbonate of potash has eased off somewhat, and is now obtainable at about £26 5s. per ton, with the demand on moderate lines. There is a fair amount of inquiry about for caustic potash, and quotations are maintained at from £30 to £31 per ton. Yellow prussiate of potash is moderately steady, although there is only a quiet call for it just now; offers range from 6½d. to 6⅝d. per lb. Chlorate of potash is in fair request, and at 2¾d. per lb. prices are held. Bichromate of potash continues to attract a moderate amount of interest from buyers, and from 4½d. to 4¼d. per lb. has been quoted this week by sellers. Permanganate of potash is pretty much as it was at last report; there is only a quiet trade passing, but quotations remain at round 6½d. per lb. for the B.P. quality and about 5½d. per lb. for the commercial material.

So far there has been no apparent weakening in the case of arsenic, offers of which during the past week have been about £18 5s. per ton, at the mines, for white powdered, Cornish makes. For sulphate of copper quotations range from £24 10s. to £24 15s. per ton, f.o.b., and a moderate weight of business is being placed. Acetate of lime continues in short supply and values are steadily creeping up, brown being offered this week at £10 5s. to £10 10s. per ton, and grey at about £17. The acetates of lead, however, remain quiet and easy, with the white material on offer at £41 per ton and the brown at from £39 10s. to £40. For nitrate of lead buying interest is still slow, and quotations vary from £37 15s. to £38 per ton.

Acids and Tar Products

There is a quiet demand about for citric acid, and prices are steadier at 1s. 6¼d. to 1s. 6½d. per lb. Tartaric acid is moving off in limited quantities at 1s. 3d. per lb. or a shade less. Only a moderate call has been reported for oxalic acid, offers of which are at round 3¼d. per lb. Acetic acid is in quietly steady request and quotations are maintained at £36 10s. per ton for 80 per cent. commercial and £67 for glacial quality.

Pitch is rather an uncertain section of the market, but values are on the easy side at about £4 per ton, f.o.b. Creosote oil continues to meet with a fair inquiry and values are maintained at 7¾d. per gallon. Solvent naphtha is in poor demand and prices are weak at 11¼d. per gallon. Crude carbolic acid keeps fairly steady at round 2s. 6d. per gallon, but crystals are on the easy side at 7½d. to 7¾d. per lb.

Claim Against British Trader

Anglo-Austrian Tribunal Finds for Respondent

At a sitting of the Anglo-Austrian Mixed Arbitral Tribunal, on October 14, before Baron Van Heeckeren, president, Mr. Heber Hart, K.C., British arbitrator, and Dr. Brauneis, Austrian arbitrator, an Austrian named Zmerz Lakar brought a claim against W. E. Pearson, of 61, Mark Lane, London, for the sum of £400, with interest. Dr. Weiser represented the claimant and the Austrian Government, and Mr. Strauss was counsel for the respondent.

Dr. Weiser said that the two parties, claimant and respondent, were at one time competitors in the production of certain chemicals in Austria, where each of them had various trade marks registered. They became as a consequence engaged in litigation as to whose rights were infringed by the other's having similar trade marks. A compromise was come to, the gist of which was that the Austrian party practically waived all their rights to the trade marks, barring one. In consideration the respondent undertook to make certain payments between the years 1909 and 1914 in respect of turnover, so that there was an obligation to pay during the war period in respect of the completed year of 1914. The payments maturing before the war were fully paid. During the war very substantial payments were made, and the present claim was for the balance of the account. The respondent contended that he had no turnover during the war because he had no business in Austria at that period. He said that at the beginning of the war there was a German National, named Max Osterholz, in charge, who, as soon as the war broke out, ran the business for his own benefit.

A Strange Letter

Dr. Weiser admitted that if there was any substance in this contention his client had no case at all. Defendant in support of this had put in a letter written by Max Osterholz to another German in Hamburg, which was really a most disastrous letter for his (Dr. Weiser's) client if it was to be read literally. It stated that Pearson had to cease owing to the war and through lack of business, so he had taken over the management, as otherwise he would have been unemployed. The letter contained also the sentence: "I have exercised this right to make myself independent of the British, who have confiscated German property." That, said Dr. Weiser, seemed to show that Osterholz had thrown over his principals and misappropriated their property. But investigations in Austria by his client seemed to show that Osterholz really took over the business ostensibly to protect his principals, for they found that some time after the war Pearson started business again in Austria and that the general manager of the new company was nobody else than Osterholz, the man who was said to have stolen their business. The new company, however, was not of long duration, and was deleted from the register some time in 1926. They appointed a liquidator, who was no other than their old friend Osterholz.

Mr. Strauss said that his arguments were that the statements made in Max Osterholz's letter were true. It had been said that his client had a turnover in 1917-18, but the short answer to that was that he had no turnover whatever. The pre-war authority of his agent to trade on his behalf had absolutely gone, and whatever Osterholz himself did afterwards was of very little value in the way of business, and respondent, on the conclusion of the war, took the view that the main interest of the London factory would be better served in Austria by recognising Osterholz as an independent business man.

Respondent said the agreement referred to was made by him in July, 1899. It was his own business in Austria, but he was also largely interested in an English limited company bearing his name. His business in Austria related to a disinfectant called "Creoline." During the war he did not have any correspondence at all with the Austrian business. He, respondent, was also interested in a business at Hamburg, which was wound up by the German Government; and the letter written by Osterholz was eventually discovered in the archives of the German business.

By the President: The creoline was shipped in bulk in barrels to Austria, where it was bottled. About three months' stock was sent at a time, of the value perhaps of £200 or £300.

The tribunal found in favour of respondent, the claim being dismissed, and £20 costs awarded.

Company News

THE BURMAH OIL CO.—The company announce an interim dividend of 10 per cent., less tax.

IMPERIAL CHEMICAL INDUSTRIES, LTD.—An interim dividend on the ordinary shares is announced for the year ending December 31, 1927, at the rate of 3 per cent., actual, less income tax at 4s. in the £, payable on December 1.

BRYANT AND MAY.—An interim dividend of 6 per cent., free of income tax, is announced on the ordinary shares, and an interim dividend of 5 per cent., free of income tax, on the partnership shares, for the half-year ended September 30 last.

COMMONWEALTH OIL REFINERIES.—A trading profit of £112,429 is reported for the year. Allotments amounting to £43,000 are made for depreciation, which, with the balance, is reinvested in the business, averting any need for additional capital.

BEDE METAL AND CHEMICAL CO., LTD.—At a meeting of shareholders in Newcastle, on October 13, it was resolved that the capital of the company be reduced from £229,120 divided into 229,120 shares of £1 each to £91,648 divided into 229,120 shares of 8s. each.

ANGLO-PERSIAN OIL CO.—After allocating £1,300,000 to the several reserve funds, and £450,000 to the extra depreciation account, the directors recommend a final dividend of 7½ per cent. on the ordinary shares, making 12½ per cent. for the year ended March 31, and carrying forward, subject to excess profits duty, £2,246,879.

SADLER AND CO.—For the year ended June 30 last a net profit of £534 is shown, and £5,057 was brought forward, while £13,000 has been transferred from the reserve for taxation contingencies. A final dividend of 4 per cent. is proposed, making 7 per cent. for the twelve months, adding £3,000 to the depreciation fund, and carrying forward £5,605.

NORSKE ELEKTROKEMISK INDUSTRI AKTIESELSKAB.—It is announced that the board is submitting to the general meeting at Oslo on October 28 a proposal to write down the share capital from 10,650,000 kroner to 6,390,000 kroner, by reducing each share from 50 to 30 kroner. Of the 4,260,000 kroner written off the capital, 2,500,000 kroner will be used to write off assets. The balance of 1,760,000 kroner will be placed to the regulation fund.

ILFORD, LTD.—Resolutions, increasing the capital of the company, were passed unanimously at a meeting on October 13 of the shareholders of the company, which is acquiring the business of the Imperial Dry Plate Co. and of the Gem Dry Plate Co., Ltd. Sir Ivor Philipps, the chairman, said that the trade was going more and more to films, and by the present deal they were getting the full ownership of the most beautiful film factory in the British Empire, and a paying proposition.

UNITED STEEL COMPANIES.—For the year ended June 30 last the report states that the profits, including dividends and sundry income, amounted to £57,148, and £300,000 has been transferred from the reserves, while £520,909 was brought forward. The debenture and obligation interest absorbs £162,247; sinking fund requirements, £27,881; paid under guarantee of preference dividend of United Strip and Bar Mills, £96,000; reserve against losses of subsidiary companies, £119,912; leaving a balance of £472,016 to be carried forward.

CHESHIRE UNITED SALT.—A circular issued to the shareholders states that the operations for the six months from the taking over of the two salt properties on March 1 last, resulted in a profit of £2,682, or an average of £447 per month, subject to allowances for interest charges and London office expenses. About £5,000 has been expended on additional buildings and plant, the benefits of which will appear in the next report, which should show increased profits. Having ample brine supplies and every facility for economical production, together with space for extensions to any desired extent, and a ready market on the spot for all salt produced, the company will make further extensions as rapidly as possible.

SUB NIGEL, LTD.—The working profit for the year ended June 30, 1927, amounted to £335,840, and after deducting £2,674, being the difference between sundry items of revenue and expenditure, the balance of the income and expenditure account shows a net profit of £333,165. This amount, together with £24,287, unappropriated at the commencement of the year, making a total of £357,452, has been dealt with as follows: Dividends Nos. 28-29 of 12½ per cent. and 25 per cent., £254,531; Government and provincial taxes, £45,921; Government participation in profits, £9,097; miners' phthisis, £750, on account of outstanding liability for year ended July 31, 1927, leaving a balance unappropriated of £47,151.

AMALGAMATED ZINC (DE BAVAY'S).—The half-yearly general meeting will be held in Melbourne on November 3. The directors' report states that the profit for the half-year ended June 30 last, amounted to £12,157, consisting principally of £7,932 interest earned, etc., and £7,580 dividends received on shares of other companies less usual profit and loss debits. This profit, added to the balance of £37,534 at end of December last, made available £49,691, from which the 40th dividend absorbing £8,000 has been paid, leaving £41,691 to be carried forward. Since the close of the period, the 41st dividend absorbing £8,000 has been declared payable on November 30 next, and a further dividend of £2,756 has been received from Minerals Separation and De Bavay's Processes Australia Proprietary, Ltd.

LAWES' CHEMICAL MANURE CO.—The report for the year ended June 30, 1927, states that sales of fertilisers have been further increased. Franc exchange has not been subject to heavy fluctuations of previous years, but the full effect of steadier quotations has not yet been established. Effect of the coal strike last year was to add considerably to the expenses of working the business. Buildings, plant, and machinery have been maintained out of revenue in efficient working condition. The balance of profit and loss account, together with the amount brought forward, amounts to £4,802, which the directors recommend shall be carried forward. The directors have had under serious consideration the question of depreciation raised at previous general meetings. After close investigation, they are of opinion that adequate provision has been made.

LAFARGE ALUMINOUS CEMENT CO.—The report for the year ended March 31, 1927, states that the directors regret that the accounts again show a loss for the period, after providing for all charges, amounting to £20,177, to which has to be added the balance brought forward, making a total debit balance on the profit and loss account of £22,669. During the year the company was called on to face serious consequences of the general and coal strikes, and the results of those strikes are naturally reflected in the accounts. The demand for Ciment Fondu continues to show a steady and highly satisfactory increase, and good progress has been made in developing widespread organisation for distribution which was initiated last year. With a view to reducing cost of production, certain portions of the factory have been re-designed, which has necessarily involved an outlay of capital additional to that which was originally anticipated. The annual meeting will be held at 296, High Holborn, London, W.C., on October 25, at 2.30 p.m.

Chemical Trade Inquiries

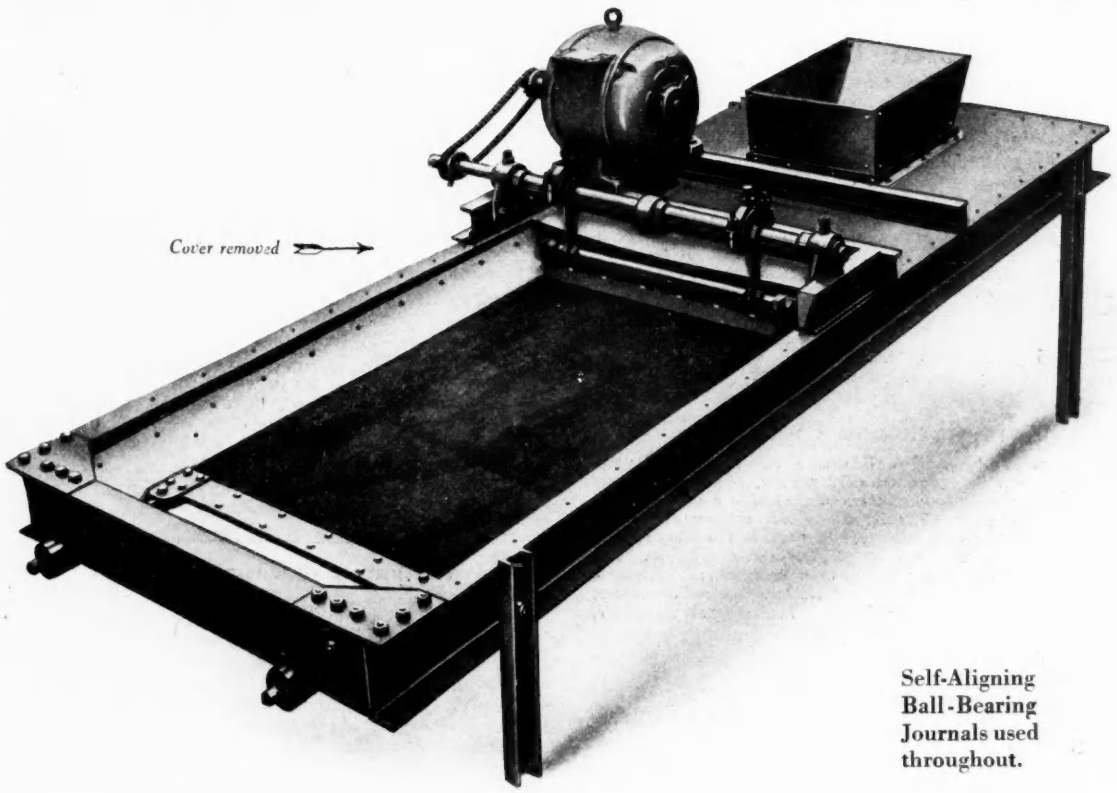
The following inquiries, abstracted from the "Board of Trade Journal," have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

SOAP.—The South African Railways and Harbours Administration invite tenders, to be received in Johannesburg by November 24, 1927, for the supply of quantities of hard, soft, and toilet soap. (Reference B.X. 3901.)

CHEMICAL PRODUCTS.—A well-recommended firm established in Athens desires to enter into business relations with British manufacturers, not represented in Greece. (Reference No. 335.)

RED LEAD.—Old-established firm of import and export agents in Rotterdam desires to obtain the representation of British manufacturers. (Reference No. 337.)

PAINTS, VARNISHES, AND ENAMELS.—Agent established at Genoa, well introduced in shipping circles, desires to represent British manufacturers. (Reference No. 339.)



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Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

County Court Judgments

[NOTE.—The publication of extracts from the "Registry of County Court Judgments" does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry makes no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.]

WILLIAMS (FRANCIS) AND SON, 48, Scrutton Street, E.C., manufacturing chemists. (C.C., 22/10/27.) £19 2s. 3d. September 20.

Mortgages and Charges

*[NOTE.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.]*

MACLEANS, LTD., London, N.W., manufacturers of toilet specialities. (M., 22/10/27.) Registered October 8, £500 debentures, part of £4,000; general charge. *——. January 11, 1927.

TIMMIS AND INGHAM, LTD., Ilford, chemical manufacturers. (M., 22/10/27.) Registered October 4, charge to Bank; charged on 102, High Road, Ilford. *Nil. December 17, 1926.

London Gazette, &c.

Winding Up Petition

SILVER SPIRIT, LTD. (C.W.U.V., 22/10/27.) A creditor's petition for winding-up has been presented by Russian Oil Products, Limited, Moorgate Hall, 153, Moorgate, London, oil importers and merchants, and is to be heard at the Royal Courts of Justice, Strand, London, on October 25.

Company Winding Up Voluntarily

HARTS COLOURS, LTD. (C.W.U.V., 22/10/27.) W. P. Masterson, Bank of England Chambers, Tib Lane, Manchester, chartered accountant, appointed as liquidator, October 11.

New Companies Registered

ALLENS (LIVERPOOL), LTD. Registered October 13 Nom. capital, £2,000 in £1 shares. Disinfectant and soap manufacturers and general merchants, carried on by J. R. Kay, H. Coxon, and E. Orritt at 31 and 33, Vauxhall Road, Liverpool, as "Allens." Directors: H. Coxon, 100, Portlet Road, Stoneycroft, Liverpool, and E. Orritt.

PARK MILL BLEACHING AND DYEING CO., LTD. Registered October 18. Nom. capital, £500 in £1 shares. Bleachers, dyers, makers of bleaching and dyeing materials, cotton and cotton waste merchants, cotton spinners and doublers, etc. Directors: T. Burton, "Ingle Mount," Clayton West, nr. Huddersfield; W. Moore.

WHITEWALL ENGINEERING CO., LTD. Registered October 14. Nom. capital, £40,000 in £1 shares (20,000 10 per cent. cumulative preference and 20,000 ordinary). Manufacturers of and dealers in synthetic products, petrol, petroleum, benzine, lubricating and other oils, refiners, seed crushers, manufacturers of and dealers in electrical insulating material, glass materials, briquettes, binder for briquettes, material for roadmaking and for railway purposes, paint, anti-fouling paint, oil cake and oil products, and to adopt an agreement with A. T. Frampton and A. W. Hussey-Vivian. Directors: B. F. H. Maturin, 184, Cromwell Road, London, S.W.5; J. G. de Lorimier; A. T. Frampton.

"Chemists and Dividends"

On Wednesday, Mr. S. M. Gluckstein, a director of J. Lyons and Co., Ltd., read a paper bearing the above title before the London section of the Institute of Chemistry, at the Institute, Russell Square. In his paper Mr. Gluckstein dealt with the manner in which the chemical department of a large company should be organised, illustrating his points by reference to the organisation built up by his own firm. The chemical laboratory of Lyons and Co. was started in July, 1919, with a chief chemist, one senior assistant and one junior assistant, and a laboratory steward, and has grown so rapidly that the total staff of the laboratory now numbers 72. Mr. Gluckstein indicated the manner in which chemistry and chemists could be of great service in industry, and of the importance to the chemist of taking a great interest in the economic aspect of his firm's work. Considerable interest also attached to the account given of the manner in which the financial value of a laboratory could be assessed, by debiting each department with definite charges for the work done for it. There was a very large attendance of members, who followed the address with the keenest attention, and at the end Mr. Gluckstein was warmly thanked on all hands for the skilful manner in which he had dealt with his subject.

The Future of Chemical Textiles

Dr. E. F. Armstrong, of the British Dyestuffs Corporation, Ltd., addressing the Huddersfield Textile Society at the Technical College this week, suggested that the world is now at the beginning of a chemical age. It was now the turn of the chemist, he said, to invent, and to make it possible to apply science. The time had come for chemistry to advance materially the civilisation and comfort of the world. In recent years the exigencies of changing trade had given an impetus to the chemical industry. Cellulose acetate was going to be a relatively cheap material of the future, and the textile makers would have at their disposal in the time to come purely synthetic fabrics possessed of all sorts of valuable properties. The textiles of the future were not going to be of the old natural products, wool, cotton, and flax, for the artificial products of cellulose acetate and viscose were only the forerunners. When the chemist knew a little more about these fabrics there seemed to be endless opportunities for making them for all sorts of purposes. When other processes of making cellulose soluble were discovered there would be effects which we did not dream of at present.

Fire Resisting Paint

Some interesting points have been noted by Professor P. Groom, professor of the technology of woods at Imperial College, in tests made on well-seasoned wood painted with Colardo fire-proof paint and exposed to the pot test part of the flame of a Bunsen burner. When placed in contact with the Bunsen flame, he states, the Colardo coating very greatly delayed the ignition and rate of burning of the wood. Subsequently, when the Bunsen burner was removed, this coating caused early extinction of the flame and suppression of smouldering. These results confirm those obtained by German experts, who used a different method of testing.

Benn Brothers' Other Journals

The Cabinet Maker.—Transport; Merchandise Marks Act; F.T.B.A. at High Wycombe.

The Electrician.—"Internal Combustion Electric Railway Vehicles," by M. G. Say; "Psychology in Engineering," by W. Wilson; "Fashions in Lighting Equipment," by C. Sylvester.

The Fruit Grower.—"Orchard Costings"; Tar-wash Trials in Cheshire; Plans for the Imperial Fruit Show.

Gardening Illustrated.—Special Rose Number; Planting Roses in Autumn; Best Roses of Recent Introduction; Roses in Scotland; Rose Gardens at Highmount, Guildford.

The Gas World.—Issue of New Capital by Gas Companies; Methods of Charging for Gas; Capital Charges and Reserves.

The Hardware Trade Journal.—Modern Appliances at the Dairy Show; Steel from a New Angle; Present Position of the Brush and Broom Industry; Building Hardware Displays.

The Timber Trades Journal.—More about Congestion at the Docks; Railway Rating Facts for Traders; Soft-wood Supplies in N.W. Europe; Working a Push Bench.